112039

APPENDIX A
DATA/DOCUMENTATION FORMS

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DATA/DOCUMENTATION FORMS

FORM NO.	TITLE
HS-1	Record of Medical Examination
HS-2	Training Session Documentation Form
HS-3	Log of Protective Equipment Issued
HS-4	Accident Report Form
HS-5	Air Monitoring Data Report

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HS-1	Record of Medical Examination
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Form HS-1
By _____
Date _____

Hranica Waste Site
Buffalo Township, Pennsylvania
Project No. X83-1344-DW
Sheet ____ of ____

RECORD OF MEDICAL EXAMINATION

EMPLOYEE NAME	SOCIAL SECURITY NUMBER	MEDICAL EXAMINATION (DATE) PREWORK	POSTWORK	OTHER

Routing:
Site File (copy) _____
Central Files _____

AR300188

Form HS-2
By _____
Date _____

Hranica Waste Site
Buffalo Township, Pennsylvania
Project No. X83-1344-DW
Sheet ____ of ____

TRAINING SESSION DOCUMENTATION RECORD

Instructor _____

Topics Covered _____

_____

_____

_____

ATTENDEES

NAME (print)	SIGNATURE

Routing:
Site File (copy) _____
Central Files _____

Form HS-3
By _____
Date _____

Hranica Waste Site
Buffalo Township, Pennsylvania
Project No. X83-1344-DW
Sheet ____ of ____

LOG OF PROTECTIVE EQUIPMENT ISSUED

EMPLOYEE NAME	SOCIAL SECURITY NUMBER	RESPIRATOR		HARD HAT		GOGGLES		BOOTS		GLOVES		RAIN GE	
		OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	I

Routing:
Site File (copy) _____
Central Files _____

Form HS-4
By _____
Date _____

Hranica Waste Site
Buffalo Township, Pennsylvania
Project No. X83-1344-DW
Sheet ____ of ____

ACCIDENT REPORT FORM

Date and Time of Accident/Injury: _____

Injured Employee:
Name _____
S. S. Number _____

Date Employee Returned to Work: _____ Lost Days _____

Description of Accident/Injury: _____

Response: _____

Medical Assistance Sought? Yes _____ No _____

Cause of Accident/Injury: _____

Corrective Measure(s) to Prevent Recurrence: _____

_____
Foreman Date

_____
Project Manager Date

Routing:
Site File (copy) _____
Central Files _____

Form HS-5
By _____
Date _____

Hranica Waste Site
Buffalo Township, Pennsylvania
Project No. X83-1344-DW
Sheet ____ of ____

AIR MONITORING DATA REPORT

Meteorological Conditions:

Wind Speed _____ mph

Wind Direction _____

Air Temperature _____ °F

Cloud Cover _____ percent

Site Work Activities: _____

_____

_____

_____

Air Quality Readings:

		CONCENTRATION (ppm)			
		ORGANIC VAPOR (OVA/GC)		SELECTED CHLOROCARBONS	
TIME	LOCATION	PEAK	AVERAGE	COMPOUND	VALUE

Routing:
Site File (copy) _____
Central Files _____

AR300192

APPENDIX B

BUTLER COUNTY
WARNING AND PREPAREDNESS PLAN
FOR
HRANICA HAZARDOUS WASTE SITE

APPENDIX B
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APPENDIX B

BUTLER COUNTY WARNING AND PREPAREDNESS PLAN FOR HRANICA HAZARDOUS WASTE SITE

B.1.0 GENERAL INFORMATION

B.1.1 SCOPE

The Hranica hazardous waste site is located along the Ekastown Road about one mile south of the Sarver Volunteer Fire Department in Buffalo Township in Butler County, Pennsylvania.

The Hranica site is a 10- to 15-acre drum disposal/landfill facility which skirts and encroaches on a ravine in Buffalo Township. The site, based on comments from the site owner, received waste solvents and off-specification paints from Pittsburgh Plate Glass and unknown materials from Alcoa which may include aluminum paste and aluminum powders. During an on-site inspection by Ecology and Environment, Inc., some seven to eight thousand 55-gallon drums, numerous large storage tanks, and numerous 5-gallon pails were observed on the site. While on site, organic vapor readings up to 80 parts per million were noted (this reading can be observed by the human nose) and the site is potentially a source of ground water contamination to springs which serve as the water supply for the local population and livestock. Explosion potential from aluminum powder dust and solvent fumes' vapors is also possible.

Approximately 500 persons reside within one-half mile of this site and may require evacuation should an accident occur during cleanup of the Hranica site. It will be assumed that only 50 percent of these persons, or 250 people, will require temporary housing at a designated mass care facility.

B.1.2 PURPOSE

The purpose of this plan is to prescribe the procedures to be followed in the event of an emergency at the hazardous waste site, should evacuation of the surrounding area be required.

B.2.0 BASIS OF ACTION

Actions taken will be based on information received from the Department of Environmental Resources (DER) or the designated site emergency coordinator. DER will monitor activities at the site during cleanup.

B.2.1 ACTION BY SITE EMERGENCY COORDINATOR

Upon determining that an emergency situation exists which warrants evacuation of persons within one-half mile of the site, the site coordinator will notify the Butler County Communications Center and advise them to institute this plan. The site coordinator shall leave with the Communications Center a place and telephone number where they can be reached.

Note: If time permits, the site coordinator shall notify the County Emergency Management Director of a potential emergency developing at the site in order that the response agencies may be alerted to prepare for action.

B.2.2 ACTION BY THE BUTLER COUNTY COMMUNICATIONS CENTER

Upon instructions from the site coordinator that an emergency has occurred that will warrant an evacuation, the Communications Center will immediately notify the following:

- Buffalo Township Police (via radio)
- Sarver Fire Department (via radio, activate siren)
- Buffalo Township Fire Department (via radio, activate siren)
- Butler County EMA Director.

See Attachment 1 for call list.

B.2.3 ACTION BY BUFFALO TOWNSHIP POLICE

When advised to implement this evacuation, the Buffalo Township Police will assist fire departments in alerting people in the one-half-mile area to evacuate. The police will then establish traffic control points at Parker and Ekastown roads and at or near Palko's Tavern and Ekastown Road.

B.2.4 ACTION BY FIRE DEPARTMENTS

When advised to implement this evacuation, the Sarver and Buffalo Township fire departments will alert people within the one-half-mile evacuation area and direct them to the area high school and elementary school located along Route 356. Fire departments should assist the police in establishing the traffic control points and assist Red Cross personnel in manning the mass care facilities at area schools.

B.2.5 ACTION BY BUTLER COUNTY EMERGENCY MANAGEMENT AGENCY DIRECTOR

- Communicate with site coordinator to determine situation
- If necessary, activate the mass care facilities (Red Cross)
- Activate the Public Information Officer and other key staff personnel
- Notify Township supervisors
- Notify the Township Emergency Management Coordinator
- Notify local hospitals of the situation
- Advise PEMA
- Establish a command post at Sarver Volunteer Fire Department
- Advise the DER.

B.2.6 ACTION BY RESIDENTS

Upon hearing an evacuation has been called, residents should proceed to mass care facilities or follow directions given them by Emergency Broadcast Stations (WISR 680, WBUT 1050, KDKA 1020, WLET 98 FM).

B.2.7 ACTIONS BY THE RED CROSS, BUTLER CHAPTER

- When notified by the Butler County EMA Director or staff, the Red Cross will open mass care facilities at the area high school and elementary school located along Route 356
- The Red Cross will notify the County Public Information Officer when the facilities are in operation, to be relayed to the public by the Emergency Broadcast System (WISR, WBUT, KDKA)
- The Red Cross will stand by for further instructions from the Butler County EMA.

B.2.8 CONTINGENCY PLANS

A copy of this plan will be furnished to all concerned for use in the event that any unforeseeable development (such as a breakdown in communications) prevents its orderly implementation. In that event, every effort to ensure its implementation will be taken by use of alternative communications.

AR300199

APPENDIX D

D'APPOLONIA - LABORATORY ANALYSIS PROTOCOL
WASTE DISPOSAL SITE CLEANUP
HRANICA SITE, BUFFALO TOWNSHIP, PENNSYLVANIA
JULY 1983

Project No. X83-1344-DW
June 83
Rev. 1; July 83

D'APPOLONIA

Laboratory Analysis Protocol

Waste Disposal Site Cleanup
Hranica Site

Buffalo Township, PA

PPG Industries, Inc.
Pittsburgh, Pennsylvania

ALCOA
Pittsburgh, Pennsylvania

AR300201

H-8

Laboratory Analysis Protocol

Waste Disposal Site Cleanup
Hranica Site

D'APPOLONIA

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1.0 INTRODUCTION

This document describes the protocol to be employed by D'Appolonia Waste Management Services, Inc. (D'Appolonia), in analyzing drummed waste materials, liquids stored in tanks, visibly contaminated soils, ash residues, and other potentially contaminated debris during the execution of the remedial work at the Hranica abandoned hazardous waste site near Sarver, Pennsylvania. This protocol concentrates on the specific tests of each waste type to satisfy the requirements of the U.S. Department of Transportation (DOT) shipping regulations and the U.S. Environmental Protection Agency (EPA) regulations under the Resource Conservation and Recovery Act (RCRA). The analyses to be performed are the following:

- Characterization testing (containerized and non-containerized) to allow categorization of waste materials (Table 1).
- Additional characterization testing and analyses for specific parameters to provide data for transportation manifests and disposition at specific off-site facilities (Table 2).

All laboratory testing and analyses will be performed using methods and techniques developed or recognized by the EPA.

The Preparedness, Prevention, and Contingency Plan and the Laboratory Analysis Protocol constitute the special project procedures to be employed at the Hranica site cleanup. The D'Appolonia Project Manager will ensure continuous adherence to all procedures during the performance of the work. In no case may work be performed in a manner that conflicts with the intent or the inherent safety and environmental conservatisms expressed in these procedures. These documents have been reviewed by the Pennsylvania Department of Environmental Resources (DER) and revised (Revision 1; July 1983) to respond to their comments.

2.0 LABORATORY FACILITIES

Because of the proximity of D'Appolonia facilities to the Hranica site, D'Appolonia will use use our full-service environmental laboratory in Murrysville, Pennsylvania for the analysis of samples collected during the conduct of the work at the Hranica site. The D'Appolonia environmental laboratory is certified (Laboratory No. 38-120) by the EPA and the Commonwealth of Pennsylvania for microbiology, inorganic, and organic drinking water analyses. The program annually requires the analysis of EPA control samples for the following parameters:

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver
- Nitrate
- Fluoride
- Endrin
- Lindane
- Methoxychlor
- Toxaphene
- 2,4-D
- 2,4,5-TP (silvex)

D'Appolonia has also received a proficiency rating from the National Institute for Occupational Safety and Health (NIOSH) under the Proficiency Analytical Testing (PAT) Program (Laboratory Identification No. 15235001). The PAT program includes analysis of air samples (filters) for cadmium, lead, and zinc, and charcoal sorption tubes for the following organic compounds:

- Benzene
- Carbon tetrachloride
- Chloroform
- 1,2-dichlorethane
- Methylene chloride
- Methyl chloroform
- Methyl ethyl ketone
- Methyl isobutyl ketone
- p-Dioxane
- Toluene
- Trichloroethylene
- o-Xylene

State-of-the-art instrumentation is utilized in the D'Appolonia laboratory. In addition to the typical wet chemical equipment (e.g., ultraviolet and visible spectrophotometers, fluorometer, ion selective and pH meters, dissolved oxygen meters, and conductivity meters), the following laboratory instrumentation is currently in use:

- Perkin-Elmer 5000 Atomic Absorption Spectrophotometer with graphite furnace (Perkin-Elmer HGA-500) and Perkin-Elmer Model 2380 Atomic Absorption Spectrophotometer with Background Corrector and IL AVA Hydride Generation System. These units, which are used for metal analyses, are completely automated and interfaced directly to our in-house computer for data reduction and storage. The graphite furnace enables much lower detection limits to be achieved than by conventional flame atomization.

- Hewlett-Packard (HP) 5985B Gas Chromatograph/Mass Spectrometer/Data Station (GC/MS/DS) System. This system, which is used for organic compound identification and quantification, comprises a microprocessor controlled HP5840A gas chromatograph interfaced with an HP5985B quadruple mass spectrometer. The mass spectrometer has a scanning range from 10 to 1,000 atomic mass units and is equipped with both chemical and electron impact ionization sources. Data acquisition and reduction is accomplished by an HP21MX E-Series computer equipped with an HP7920S 70 megabyte disc drive. The software package is designed to provide compound identification and quantification according to the EPA Priority Pollutant Protocol or by the NIH/EPA/MSDC Mass Spectral Data Base containing the mass spectra of 25,560 organic and organometallic compounds.

- Perkin-Elmer Sigma 1 and Sigma 2 Gas Chromatographs (GC) connected to a Perkin-Elmer Sigma 10/B4 Chromatography Data Station. These units, which are used for organic compound quantification or to determine if selected compounds are present in a sample, have their own data reduction system. The Sigma 1 GC is equipped with an electron capture detector (for halogenated hydrocarbons), a flame ionization detector (for general organics), and a nitrogen/phosphorous detector (for organics containing nitrogen or phosphorus). The Sigma 2 GC is equipped with an electron capture detector, flame ionization detector, and a thermal conductivity detector (for gases, volatile inorganic, and organic compounds). A Chemical Data Systems Pyroprobe 100 pyrolyzer can be attached to either GC or the GC/MS/DS for analysis of polymer and other nonvolatile organic materials. A Hewlett-Packard 7675A Purge and Trap Sampler can also be interfaced with either

GC or the GC/MS/DS system for volatile organic compound analyses. A Perkin-Elmer AS-100B Auto-Sampler is available for automatic injection of liquid samples into the GC. This device eliminates manual time-consuming operations and lessens the potential for operator error.

- Hewlett-Packard 5880 Gas Chromatograph with Level IV Data System and Purge and Trap Sample Preparation System. This unit is equipped with dual flame ionization detectors and single electron capture detector.

- Hewlett-Packard 5791A Gas Chromatograph with Tekmar LSC-2 Purge and Trap Device and ALS-1 Automatic Sampler. This unit is equipped with single flame ionization detector and automated purge and trap system. The data system is a Hewlett-Packard 3390 Reporting Integrator.

- Leco SC-32 Sulfur System. This system contains its own data reduction capability and utilizes an infrared (IR) detector for determining sulfur in a variety of sample types which include soil, liquids, and wastes. Sulfur forms are determined by sample pretreatments.

- Oceanography International Model 524 Total Organic Carbon Analyzer. This unit enables total organic carbon (TOC) determinations to be performed on a variety of materials, including water, sediment, soil, and various solvent media.

- Oceanography International Model 610 Total Organic Halogen (TOX) Analyzer. This is used for the determination of purgeable and TOX in water and waste samples.

- Apple II Computer System. Both the TOC and TOX analyzers are interfaced with the Apple II Computer System which manages the data from these determinations.

Laboratory balances include a Cahn Model 26 automatic electrobalance, a Sartorius Model 2003 MP1, Mettler Model H33, and Mettler Model H10 analytical balances and a Mettler Model PC4400 top loader balance. These balances are calibrated against NBS certified weights twice a year and

maintained under a service contract annually. The D'Appolonia environmental laboratory is also equipped with two Corning Mega-Pure automatic water stills which produce distilled water with a conductivity of less than five micromhos per centimeter at 25 degrees Celsius. When organic-free water is needed (e.g., for volatile organic analysis), the distilled water is passed through a activated charcoal column. The organic-free water is then verified by the purge and trap analysis technique on the GC.

ITAS INSTRUMENT LIST

Instruments for Separation and Identification

Gas Chromatograpns

Varian Model 3700 (9)	(C-5)(M-3)(K)
Varian Model 6000	(C)
Tracor Model 222 (2)	(K-2)
Tracor Model 560 (3)	(K-3)
Tracor Model 565	(K)
Perkin Elmer Sigma 2	(C)
Perkin Elmer Sigma 3 (3)	(K-3)
Perkin Elmer 3920	(K)
Hewlett Packard 5700 Series (4)	(C) (K-3)
Carle Model 8500	(K)
AID Portable Models	(K)

GC Detectors

Electron Capture (19)	(C-8)(M-3)(K-8)
Thermionic (N/P) (5)	(C-2)(M)(K-2)
Hall 700 (3)	(C)(K-2)
Hall 700A	(K)
Flame Ionization (18)	(C-5)(M-2)(K-11)
Thermal Conductivity (2)	(C)(K)
Photoionization (2)	(K-2)
Flame Photometric	(K)
FID - Capillary System (4)	(C-2)(K-2)
Electron Capture - Capillary System (4)	(C-3)(K)

GC Data Systems

Spectra-Physics Model 4000	(C)
Varian Model CDS401	(C)
Perkin Elmer Sigma 10 Chromatography Data Station	(K)
Perkin Elmer Sigma 15 Chromatography Data Station (2)	(K-2)
Perkin Elmer 3600 Data Station	(K)
Hewlett Packard 33805	(K)
Hewlett Packard 3353	(M)

Liquid Chromatograph

Spectra Physics Model 3500 B	(C)
Tracor Model 900-765	(K)
Altex Model 332	(K)
Micrometrics/Perkin Elmer	(K)

C = Carrito, California; K = Knoxville, Tennessee; M = Martinez, California

3.0 FIELD HANDLING AND SAMPLING PROTOCOL

3.1 SITE ENTRY AND SAFETY CHARACTERIZATION

Several reasonable safety monitoring procedures will be utilized to assess the site conditions. Instruments necessary to carry out these procedures are a portable gas chromatograph/organic vapor analyzer (GC/OVA) for monitoring of volatile organics and air sampling pumps with colorimetric indicator tubes for certain acutely toxic gases (e.g., hydrogen cyanide). Continuous sampling of the worker breathing zone will be performed during the handling and sampling of waste containers at the Hranica site. If it becomes necessary for personnel to enter confined spaces (e.g., tanks), combustible gases and oxygen levels will be measured in such spaces prior to entry.

3.2 GENERAL VISUAL AND PHYSICAL CHARACTERISTICS

This phase of the investigation will primarily be performed by the field handling teams. Work crews under the direction of a field chemist/engineer will inspect each drum, waste area, and tank prior to sampling. Before any samples are withdrawn, a preliminary assessment of the waste container and waste (if visible) will be performed, paying particular attention to any labeling or placarding information and the presence of waste materials on the outside of the container and/or the surrounding ground. The top portion of the waste inventory form will be completed (Form LAB-1; Appendix A) will be completed and a code number will be painted either on the container or on a surveyor's stake in the waste area, as applicable. Any unusual containers or drums will be noted for special handling and segregation. The field personnel will also record any evidence of toxicity of the waste or potential hazards in the area. Special attention will be paid to see if any waste drum is either leaking or sealed but bulging due to internal pressure. Badly deteriorated or leaking drums will either be transferred immediately to the drum handling areas in the upturned bucket of a front-end loader or overpacked/repackaged in their present location.

3.3 SAMPLING AND DELIVERY TO THE LABORATORY

Samples of hazardous wastes will be retrieved under the direction of the field engineer/chemist. Samples will be collected in clean 500- and 1,000-milliliter amber glass jars sealed with teflon-lined lids. In no case will sampling jars be reused, thereby eliminating the possibility of cross-contamination. Sampling and handling procedures are given in the following paragraphs. Upon request of the EPA and/or DER, D'Appolonia will provide duplicate/split samples to these agencies for their use.

3.3.1 Drummed Wastes

Much of the wastes deposited at the Hranica site remain in drums that are essentially intact. Handling of these drummed wastes requires specific precautions. Samples will be withdrawn from each of the estimated 10,830 nonempty waste drums.

3.3.1.1 Drum Handling

Drum handling will be performed only by personnel specifically designated for this task, equipped with the proper tools and personal protection. The fundamental safety provisions include the following:

- Opening drums only in well-ventilated, open areas and positioning the drum handling personnel upwind of the container being opened.
- Using a nonsparking bung wrench, air-powered cutter, or other appropriate device for opening the container.
- Equipping drum handling personnel with full-face supplied air or air-purifying respirators, high gauntlet rubber gloves, and impermeable coveralls, whenever nonleaking, intact drums are to be opened.
- Providing a chemical fire extinguisher (ABC type) to each drum handling crew that will be ready for immediate use.

Shovels and absorbent material will also be made available for immediate response to any spills during drum handling.

3.3.1.2 Opening Intact Drums

After the preliminary assessment (Section 3.2), the drum will be carefully opened for sampling. For an intact container, the preferred method of gaining access for sampling is by opening the vent and/or fill ports with a nonsparking bung wrench or removing the top closure band. If the bung cannot be removed, the top of the drum will be pierced using a manual deheader, air-power cutter, or piercing spike.

3.3.1.3 Handling Special-Case Containers

Containers of air-reactive and water-reactive wastes may be encountered during the inventory and sampling of waste drums. The most reliable indicator of an air-reactive waste is the form of packaging; air-reactive substances normally require special packaging. The wastes may be stored under water or some other liquid to prohibit air from coming in contact with the wastes. They may also be found in sealed ampules, corrugated drums, stainless steel cannisters, or specially lined drums. From the records of the waste placed at the site and site inspection conducted, there is no evidence of air-reactive wastes present at the site. The Alcoa aluminum powder, however, may be water reactive; all drums of Alcoa waste will be treated as water reactive unless otherwise indicated.

In the event any specialized or suspicious-looking container is encountered, special handling is required, and that container should be suspected of holding reactive or explosive wastes. In such cases, these drums will be handled on a case-by-case basis, depending upon what they are suspected to contain. If a potential air-reactive or other special-case container is uncovered, a contingency plan for handling that particular waste container will be developed by the D'Appolonia Project Manager and approved by PPG, Alcoa, and the DER before implementation. Potential actions include the following:

- Removal of the drum to a separate, remote pit excavated specifically for this purpose. Here the container would be opened remotely using a specially designed drum spike or by a shot projectile.

- Removal of the drum to a tank of oil and submerging the drum in oil prior to opening with a drum spike.

- Calling in a Special Handling Team for appropriate on-site or off-site handling.

3.3.1.4 Sampling

A sufficient sample volume will be taken for the laboratory characterization and possible subsequent analyses. If the waste is a heterogeneous mixture, the solid and liquid phases will be sampled separately. Any observable characteristics of the waste will be noted at this time, including a preliminary determination of the viscosity of any fluids contained in the drum.

Liquids will be sampled with a thieving rod or a similar pipette instrument. Samples will be examined through the rod for immiscible phases or other visual heterogeneities. Liquid sampling rods are disposable and will not be reused. Solids and sludges will be withdrawn using small hand shovels or trowels. These samplers will either be disposed or decontaminated after each use.

3.3.2 Tank Liquids

Several large storage tanks at the Hranica site contain varying quantities of liquid hazardous wastes. Although not yet confirmed, these tanks most likely contain oils, solvents, and collected rainwaters; one tank is known to contain approximately 1,500 gallons of oil contaminated with more than 5,000 parts per million polychlorinated biphenyls (PCB's).

Access to the tanks for sampling liquids will be through existing hatches, entryways, or valves. At least some of the tanks have open tops. Establishing entry will be performed under the strict supervision of the Project Manager. Small pumps and siphons will be available for withdrawing samples. If necessary, the tanks will be covered after sampling to preclude accumulation of precipitation.

Once the wastes are removed, the tanks will be washed with solvents and rinsed with water. The rinse water will be sampled for laboratory analysis to verify the thoroughness of decontamination. The solvents and rinse waters will be recycled if not contaminated or, if contaminated, disposed appropriately off site as hazardous waste.

Solids or sludges found in tank bottoms will be sampled using disposable hand trowels or by collecting and settling solids from liquid samples/cleaning fluids.

3.3.3 Ash Residue and Contaminated Soil

Systematic sampling of ash residues and visibly contaminated soils will be conducted by withdrawing samples in the center of the four quadrants of each waste area and then compositing the four samples to form a representative sample. Samples will be collected by digging a shallow (12-inch) hole with a shovel or hand auger. Ash and/or soils throughout the 12-inch depth will be blended into the sample.

Spills of hazardous materials during the remedial action program will also result in the need for contamination testing of soils. Samples will be withdrawn from the soil in any spill area in the same manner as other preexisting visibly contaminated soil.

3.3.4 Other Debris

In addition to the drummed wastes, tank liquids, and ash residue and contaminated soil, other bulk debris is to be removed from the Hranica site. Such debris includes empty (per RCRA) drums, incineration vats, and lumber and metal associated with the Hranica residence.

Drums meeting the RCRA definition of empty, but in which the residue cannot be readily identified, will be considered to have held acutely hazardous waste as defined under Section 75.261(4)(b) of the Pennsylvania hazardous waste regulations. Such drums that are to be salvaged or sent to a sanitary landfill will be triple rinsed using an appropriate solvent. This procedure is considered to be conservative in that the formulated wastes expected at the Hranica site would not normally be classified as an acutely toxic waste. Rinsing fluids will be handled in the same manner as tank rinse fluids (Section 3.3.2). Contamination of the incineration vats will be determined by testing of their contents using the EP toxicity procedure and an organic screening analysis as appropriate.

Any lumber associated with the Hranica residence that is visibly contaminated will be disposed as hazardous waste. Metal objects visibly contaminated with hazardous wastes will be sampled using wipes of solvent and water soaked filter papers or absorbent cloth pads. One wipe sample will be taken for each significant metal object and each ten wipe samples will be composited into one sample for analysis.

3.4 DELIVERY AND LABORATORY RECEIPT

To ensure chain of custody of the samples and rapid turnaround of results, the following delivery and laboratory receipt procedure will be employed:

- Samples collected during the workday will be placed in storage racks together with the field sampling documentation forms.
- The samples and accompanying documentation will be delivered two times per day to D'Appolonia's Murrysville laboratory.
- At the laboratory, field sampling data forms will be reviewed and the samples analyzed during a special night shift.

Samples will be preserved upon receipt in the laboratory using appropriately prepared containers. Samples will also be refrigerated at 4 degrees Celsius and maintained at that temperature until analysis.

4.0 LABORATORY PREPARATION

4.1 INSPECTION AND SCREENING

Much of the initial characterization is performed in conjunction with the sampling procedure and the field reports will be reviewed to determine the number of phases in the sample and other pertinent data. The analyst will perform tests, or verify field information, relative to odor, color, texture, viscosity, and other physical characteristics. Each drum sample will be inspected and the laboratory supervisor will make an evaluation of the identity of the material in relation to other materials encountered.

4.2 PHASE SEPARATIONS

This step can be omitted if the sample is obviously in a single phase. Otherwise, it may be necessary to perform a phase separation with a centrifuge or filtration step. Separate phases will be characterized individually. Separate phases in liquid wastes will give a general indication of organic and inorganic constituents.

4.3 COMPOSITING SAMPLES

After preliminary screening and necessary phase separations, composite samples of like drummed material will be formed. Equal aliquots from each contributory drum sample will be withdrawn to form the composites for further characterization and classification testing.

4.4 SAMPLE PREPARATION

Soils, solids, or liquid samples may require an extraction procedure in order to isolate organic species prior to measurement by chromatography. The procedures to be employed for such sample preparation are described in the following paragraphs.

4.4.1 Shakeout Procedure (EPA Method No. 8.84)

A known amount sample is made acidic or alkaline and extracted three times with appropriate solvent using vigrous agitation. The combined extracts will be dried over sodium sulfate and concentrated.

4.4.2 Sonication Method (EPA Method No. 8.85)

A known amount of sample is mixed with the extraction medium and sonicated. The sonication disrupts the solid matrix for effective extraction with solvents.

4.4.3 Soxhlets Extraction (EPA Method No. 8.86)

Samples mixed with anhydrous sodium sulfate are extracted by the soxhlets method using proper solvent. The extract is then concentrated, cleaned, or analyzed directly.

4.4.4 Liquid-Liquid Extraction (EPA Method No. 9.01)

Removal of interferences is accomplished by series of liquid-liquid extraction conducted at different pH values and with variety of solvents. Following extraction, the sample may be concentrated, cleaned, or analyzed directly.

5.0 LABORATORY ANALYSIS PROTOCOLS

5.1 CHARACTERIZATION TESTING PROTOCOL

Characterization testing is required on all waste materials to provide information regarding the nature of contaminants present, manifesting, and the requirements for additional testing.

5.1.1 Ignitability (EPA Method 4.0)

An open-flame ignitability determination will be made by placing a small quantity of waste in a beaker, heating the waste, recording the temperature of the waste, and passing a propane torch slowly over the airspace above the waste. The waste temperature at which the off-gas ignites is recorded as the open-cup flash point. Ignition of the off-gas below about 150 degrees Fahrenheit classifies it as a potentially ignitable organic, and the sootiness and color of the flame will give a general indication of the waste being either aromatic or aliphatic. Closed cup flash points will be measured by ASTM Method D 93 using a Pensky-Martens closed cup tester to determine whether these potentially ignitable samples are classified according to one of the following:

- Flammable (according to DOT regulations) - Flash point less than 100 degrees Fahrenheit.
- Ignitable (according to RCRA) - Flash point less than 140 degrees Fahrenheit.

5.1.2 Bielstein's Copper Wire Test for Halogens

A preliminary test for the presence of halogens will be conducted by placing a small sample of the waste in an open flame using a copper wire loop. A green-colored flame indicates the presence of halogens.

5.1.3 Water Reactivity (EPA Method 6.0)

The initial determination of whether the waste is reactive with water is made by placing several drops in a small flask with water. This test will be completed in a hood in the laboratory. Any reaction with water, heat generation, gas generation, combustion, etc., will be noted. Heat

TABLE 1
WASTE CATEGORIES

Materials Requiring Special Handling

I. Water Reactive
II. High TOX
III. Sulfide and/or Cyanide

Inorganic Wastes

IV. Inorganic Acids
V. Inorganic Bases and Neutrals
VI. Inorganic Oxidizers

Organic Wastes

VII. Organic Acids
VIII. Organic Bases and Neutrals
IX. Organic Oxidizers
X. Flammable and/or Ignitable

of solution with water or a color change will not be construed as being reactive with water.

If the results of the initial test are positive, additional testing to determine the combustibility or potential toxicity of the evolved vapors will be performed. The combustibility test is performed by placing a small sample in a beaker of water and passing a propane torch slowly over the air space of the water/waste mixture. If the offgas ignites, further testing (e.g., volatile organic scans, Section 5.3.3) will be performed. If noncombustible toxic gases are suspected, specific testing for appropriate organic or inorganic compounds (Sections 5.3.6 and 5.3.8) will be performed.

5.1.4 Water Solubility

Additional information can be obtained from water reactivity studies. Water insoluble waste will usually be organic materials while soluble wastes are generally classified as inorganic.

5.1.5 Organic Oxidizer

Potassium iodide starch paper will be used for the determination of the presence of an organic oxidizer. Appearance of a purple color indicates the presence of an oxidizer compound.

5.1.6 Peroxides

A check with peroxide paper will indicate the presence of peroxides.

5.1.7 pH and Corrosivity

A check with pH paper will indicate the presence of acids, bases, or neutral organics. If a specific pH is required, EPA Method No. 5.2 will be used. The determination of pH will be an acceptable indicator of the characteristic of corrosivity (i.e., pH < 2 or pH > 12.5).

5.1.8 Waste pH <3 Test for Nitric Acid

The presence of nitric acid will be tested using diphenylamine indicator and sulfuric acid reagent.

5.1.9 Spot Test for Cyanide and Sulfide

A semiquantitative test for cyanide will be performed using specially designed colorimetric tubes. For quantitative analysis, a specific ion electrode determination will be made.

A preliminary test for sulfide will be performed using lead acetate paper. A color change of pH paper to brown indicates the presence of sulfide.

5.2 BENCH-SCALE COMPATIBILITY BLENDING

If necessary, small samples of selected waste materials will be blended within a laboratory hood to evaluate compatibility. The blending will be carefully observed to identify signs of any reactions that may occur.

5.3 ADDITIONAL TESTING

Based on the results of characterization testing and any bench-scale blending, samples of compatible materials will be further composited and additional testing performed to determine appropriate handling and bulking techniques and disposal methods.

5.3.1 Total Organic Halide

Total organic halide (TOX) analyses will be performed using a modification of EPA Method No. 602. A known amount of solid or sludge will be extracted with nonchlorinated solvent (hexane). The extract (or liquid sample) will be passed through a column containing activated charcoal over heated quartz wool and then washed to remove inorganic halides. Following pyrolysis, the absorbed organohalides will be desorbed using hydrogen and measured by Hall electrolytic conductivity detection.

5.3.2 **Total Organic Carbon**

As necessary for analyzing liquids to be incinerated or treated, samples will be tested to determine the concentration of total organic carbon (TOC). The technique to be used is EPA Method No. 415.1.

5.3.3 Volatile Organics

Benzene, toluene, xylene, and other volatile organics will be analyzed using a purge and trap technique (EPA Method No. 8.83). An inert gas (N_2) will be bubbled through the sample in a specially designed purging chamber. The purge gas transfers the volatile organics to the vapor phase which is trapped on a sorbent-tube. Following purging, the trap is heated and the compounds are desorbed and injected directly into the GC for identification and quantification by EPA Method No. 602 using flame ionization detection. The required detection limit (in the parts per million range) allows for detection using a flame ionization detector rather than a photoionization detector.

5.3.4 EP Toxic Extraction Procedure

In the toxic extraction procedure for solids and sludges, a representative sample of waste is extracted with distilled water maintained at pH 5 using acetic acid. The extract obtained following a 24-hour extraction period and filtering is then analyzed to determine if any of the thresholds established for the eight toxic metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) have been exceeded. If the extract contains any of these metals in amounts in excess of the specified threshold concentrations, the material is classified as hazardous by virtue of its characteristic of EP toxicity. Heavy metal concentrations in liquid samples will be analyzed directly using the same testing procedures.

5.3.4.1 Arsenic (EPA Method No. 8.51)

The gaseous hydride method will be used to determine the concentration of arsenic in the extracts. A known amount of sample will be digested using nitric and sulfuric acid. The arsenic in the leachate is reduced

by stannous chloride to trivalent arsenic and then converted to AsH_3 using sodium borohydride ($NaBH_4$). The concentration of arsenic is then determined using an argon-hydrogen flame at a wavelength of 193.7 nanometers (nm).

5.3.4.2 Barium (EPA Method No. 8.52)

A sample aliquot will be digested using nitric/hydrochloric acid and diluted using dil/HNO_3 solution. The concentration of barium is determined using acetylene-nitrous oxide flame at a wavelength of 533.6 nm.

5.3.4.3 Cadmium (EPA Method No. 8.53)

A sample aliquot will be digested with nitric/hydrochloric acid and diluted with deionized water. The concentration of cadmium is determined using acetylene air flame at a wavelength of 228.8 nm.

5.3.4.4 Chromium (EPA Method No. 8.54)

A sample aliquot will be digested with nitric/hydrochloric acid and diluted with deionized water. The concentration of chromium is determined using acetylene-nitrous oxide flame at a wavelength of 357.9 nm.

5.3.4.5 Lead (EPA Method No. 8.56)

A sample aliquot will be digested using nitric/hydrochloric acid and diluted using deionized water. The concentration of lead is determined using acetylene-air flame at a wavelength of 283.3 nm. If greater sensitivity is desired, a wavelength of 217.0 nm will be used.

5.3.4.6 Mercury (EPA Method No. 8.57)

A sample aliquot will be digested using nitric/hydrochloric acid. Mercury compounds in the sample will be reduced to metallic mercury. The mercury will be purged into a spectrophotometric cell and the concentration will be determined at a wavelength of 253.7 nm using the flameless cold vapor atomic absorption procedure.

5.3.4.7 Selenium (EPA Method No. 8.59)

A sample aliquot will be digested using nitric/sulfuric acid. The selenium will be reduced to the gaseous hydride. The concentration of selenium will be determined using argon-hydrogen flame at a wavelength of 196.0 nm.

5.3.4.8 Silver (EPA Method No. 8.60)

A sample aliquot will be digested using nitric/hydrochloric acid and diluted with deionized water. The sample will be made alkaline with ammonium hydroxide followed by addition of cyanogen iodide. After one hour, the concentration of silver is determined using acetylene air flame at wavelength of 328.1 nm.

5.3.5 Cyanides

Cyanide concentrations will be determined using the specific ion electrode method as give in Standard Methods for Examination of Water and Wastewater, 1975, 14th Edition, Method 413.E. Solid and sludge samples will be leached in an alkaline medium and liquid samples will be preserved with sodium hydroxide prior to the direct determination.

5.3.6 GC/MS for EPA Priority Pollutants (EPA Method No. 625)

If necessary, GC/MS characterization of samples will be performed on samples using EPA Method No. 625 to determine acid extractables and base neutral priority pollutants.

5.3.7 PCBs and Pesticides (EPA Method No. 8.08)

If the Bielstein's test is positive, a scan for PCBs and pesticides may be required. The testing will be performed using liquid extraction procedures followed by GC analysis. The specific PCB isomers will be identified.

5.3.8 Total Dissolved Solids

Total dissolved solids concentrations of liquids to be incinerated or treated will be determined by EPA Method No. 160.1, if necessary.

5.3.9 Specific Cation-Anion Analyses

If required, further testing will be completed using appropriate specific ion electrodes or colorimetric procedures. Total chloride and sulfate, as needed for liquids and solids to be incinerated, will be determined using wet chemistry techniques as given in EPA Methods 325.3 and 375.4, respectively.

5.3.10 Btu Heat Value

The Btu heat value will be determined by ASTM Method D 2015 using an oxygen bomb calorimeter.

5.3.11 Viscosity

If quantitative values of viscosity are needed, ASTM Method D445 will be used.

6.0 QUALITY CONTROL/DATA MANAGEMENT PROCEDURES

6.1 CHAIN-OF-CUSTODY PROCEDURES

The field technicians will document the collection of each waste sample and properly record all necessary field data. The completed field report (Form LAB-1) and sample will be delivered to the laboratory along with the chain-of-custody record. Each time a sample is delivered to the laboratory, the laboratory custodian will sign the chain-of-custody record and indicate the date of transfer. This record will accompany the sample through the laboratory process. After analyses, the data will be presented to the Project Manager, or his designee, for his use. A computer terminal at the site, connected to D'Appolonia's central computer, will expedite the return of data to the site.

6.2 SAMPLE RECEIPT AND LOGGING

The laboratory custodian will review the chain-of-custody record and note any unusual circumstances. Samples will be given a specific identification number and logged in the sample log book (Form LAB-2; Appendix A). Individual laboratory data summary sheets will then be given to each sample (Forms LAB-3 and LAB-4; Appendix A).

6.3 SAMPLE STORAGE

Only small homogeneous quantities of samples selected for analysis will be processed inside the laboratory. Unused portions of samples being stored for subsequent analytical testing will be placed in refrigerated storage at the laboratory and maintained for one year.

6.4 SAMPLE PROCESSING/CONTAMINATION CONTROL

The laboratory preparation procedures have been designed to reduce excessive handling of the concentrated samples, to accommodate a wide variety of sample types, and to produce extracts or sample aliquots ready for sample analyses. Each of these preparation steps will be conducted so as to minimize cross-contamination into other areas of the laboratory. All required aliquots of the sample for various screening tests

will be weighed out into appropriate containers. Most procedures will require no more than one or two grams, but samples used as starting material for extractions will require 20 grams or more.

6.5 INSTRUMENT RECORDS AND LOG BOOKS

Instrumental analytical data will be summarized in individual parameter notebooks that will remain with the instrument. Daily standardization and calibration information will also be included in this instrument notebook (Forms LAB-6 through LAB-8; Appendix A). Data for individual samples will be summarized chronologically and transferred as required to parameter summary sheets with the samples (Forms LAB-3, LAB-4, and LAB-5).

6.6 QUALITY CONTROL TESTING PROGRAM

Analyses are prioritized based on sample type and holding times, depending on specific instrument requirements for organic analysis or specific quality control testing procedures. The methods to be employed are those listed in the Federal Register, Volume 44, No. 223, December 3, 1979, or appropriate alternative procedures as given in Chapter 4.0 of this manual.

6.6.1 Method Certification, Standard Preparation

A part of the laboratory operation will include the certification of field laboratory methods, including calibration of field instrumentation. Quantitative method verification data will be collected on standard samples which have been spiked with the contaminants of interest. Attempts will be made to simultaneously verify as many contaminants as possible. This approach will most effectively reproduce actual field analysis conditions. Combined standards or "cocktails" will be verified at concentration levels of 0.5X, X, 2X, 5X, and 10X, where X is the method detection limit.

6.6.2 Routine Quality Control Testing

The following procedures will be routinely adhered to when analyzing all samples on a daily basis:

- Field replicates will be collected to monitor the precision of the field sample collection techniques.
- A daily calibration curve consisting of at least two standards and a reagent blank will be prepared for each compound.
- Preparation and analysis of at least one procedural blank will be completed for each group of samples analyzed.
- At least one spiked sample will be analyzed for every 20 samples processed to monitor the percent recovery and accuracy of the analytical procedure.
- D'Appolonia will analyze one sample in duplicate for every 15 samples processed.
- D'Appolonia will maintain records of the analyses of all project samples including information from collection, preparation, analysis, and data reduction for these samples.
- As part of D'Appolonia's maintenance policy, all instrument repairs or modifications are documented on a continuing basis.

6.6.3 Standard Preparation

Several organic compounds used in standard preparation are either toxic or identified as suspected carcinogens (Forms LAB-9 and LAB-10; Appendix A). Precaution must be taken while handling these compounds to prevent exposure to personnel and contamination of laboratory areas.

6.6.3.1 Total Organic Halides

The standard preparation and instrument calibration will be performed according to EPA Method No. 8.56.1. Trichlorophenol stock standard will be prepared in hexane. Serial dilutions will be made for working standards.

6.6.3.2 Total Organic Carbon

The standard preparation and instrument calibration will be performed according to EPA Method No. 415.1. Stock and working standards will be prepared using potassium biphthalate as source of organic carbon and sodium carbonate as source of inorganic carbon.

6.6.3.3 Purgeable Organics, Purge and Trap Method

The standard preparation and instrument calibration will be performed according to EPA Method No. 602. Stock and working standards will be prepared in methanol. Organic free water will be spiked with working standards for instrument calibration.

6.6.3.4 Metals, Atomic Absorption Method

Serial dilutions will be made from 1,000 part per million stock standards. The concentrations of working standards will be selected according to elemental sensitivity and linear range.

6.6.3.5 Cyanide Standard (Specific Ion Electrode Method)

The standard preparation and instrument calibration will be performed according to EPA Method No. 335.2. Potassium cyanide will be used for preparing stock and working standards.

6.6.3.6 Nonpurgeable Organics Including PCBs

The standard preparation and instrument calibration will be completed according to EPA Method No. 608. Stock and working standards will be prepared in suitable solvents.

6.7 DATA CONTROL/CHECKING

All laboratory quality control verification and standardization data will be calculated and reviewed before any data are reported. When the data meet the established criteria, they are entered on the appropriate laboratory summary forms.

6.8 DATA SUMMARY PROCEDURES

A laboratory summary sheet will accompany the samples as they proceed through the laboratory analysis protocol. When analyses are completed and the data are checked, the data will be entered on these forms. Data summaries will be returned to the site via computer hookup to expedite turnaround time. Completed data sheets will be filed at the laboratory with copies sent to the site.

TABLES

TABLE 2

WASTE CATEGORIES
AND ADDITIONAL TESTING REQUIREMENTS

WASTE CLASSIFICATION	ADDITIONAL TESTING REQUIREMENTS[1]							
	EP TOXIC METALS	GC VOLATILE ORGANIC SCAN	PCB TESTING	BTU VALUE	SULFUR AND CHLORINE CONTENT	TOC	GC/MS SCAN	OTHER SPECIFIC CATIONS-ANIONS
Materials Requiring Special Handling								
• Water Reactive	–	–	–	–	–	–	–	S
• High TOX	–	A	A	–	–	–	I	–
• Sulfur or Cyanide Containing	–	–	–	S	S	L	–	S
Inorganic Wastes								
• Inorganic Acids	A	–	–	–	–	L	–	S
• Inorganic Bases and Neutrals	A	–	–	–	–	L	–	S
• Inorganic Oxidizers	A	–	–	–	–	L	–	S
Organic Wastes								
• Organic Acids	–	A	S	S	S	–	I	–
• Organic Bases and Neutrals	–	A	S	S	S	–	I	–
• Organic Oxidizers	–	A	S	S	S	–	I	–
• Flammable and/or Ignitable	–	A	I	A	A	–	I	I

(1) Legend:

A - All composite waste samples of this type.
I - Spot checks on larger waste lots.
L - Liquid wastes for treatment as aqueous stream only.
S - Special case wastes.

APPENDIX A
DATA FORMS

FORM LAB-1
BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

WASTE INVENTORY AND SAMPLING FORM

1. WASTE TYPE: and LOT SIZE:

D - Drum	_____	30-Gal. ____	55-Gal. ____
T - Tank Liquid	_____	_____	Gallons
A - Ash Residue	_____	_____	Cubic Yards
S - Contaminated Soil	_____	_____	Cubic Yards
O - Other Debris	_____	_____	Cubic Yards

If other than drum, skip to Item 4.

2. DRUM CONDITION:

Empty	_____	Open/Leaking	_____
Partially Full	_____	Closed	_____
Full	_____		

3. DRUM LABELING/ASSIGNMENT BY GENERATOR:

A - PPG _____
B - Alcoa _____
C - Unknown or Other (specify) _____ _____

4. SAMPLE NO.: _____ (a) - _____ (b) - _____ (c)

a - 5-digit number, sequential
b - Waste type (see above Item 1)
c - Assignment by generator (see above Item 3; all non-drum wastes are assigned Category "C")

5. SAMPLE DESCRIPTION:

A. Physical State:
- Soil/Solid _____
- Liquid _____
- Semi-Solid _____
- Mixture _____

B. Phases:
- NA _____
- Multilayered _____

C. Color/Texture/Viscosity (describe): _____
_____
_____

6. OTHER COMMENTS: _____
_____

* *

TO BE COMPLETED BY LABORATORY

AR300237

7. SAMPLE NO.: _____ - _____ - _____
8. RECEIVED BY: _____ DATE: _____
9. COMPOSITE NO.: C-_____ (a)

a - 4-digit number, sequential

FORM LAB-2
BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

LOG-IN SHEET

SAMPLE NUMBER _____-_____-_____ RECEIVED BY _____
DATE SAMPLED _____ DATE RECEIVED _____

SAMPLE DESCRIPTION:

A. Solid: _____ Liquid: _____ Semi-Solid: _____ Mixture: _____
(Sludge)

Drum (D)____ Other: _____

B. Phases/Layers:

NA: _____ Single: _____ Bilayered: _____ Multilayered: _____

C. Color/Texture/Viscosity/Other Fingerprints:

_____
_____
_____

D. Preliminary Classification: _____
_____
_____

COMPOSITE NO. C-_____ TESTING:

A. Characterization/Compatability Analysis (CCA)

_____ Open-Flame Ignitability
_____ Flammability
_____ Bielstein's Halogen Test
_____ Odor (Subjective)
_____ Reactivity (Water)
_____ pH
_____ HNO_3 (Qualitative)
_____ Sulfide (Qualitative)
_____ Cyanide (Qualitative)
_____ OVA (Draeger)
_____ Oxidizing Material
_____ Peroxide
_____ Flash Point (Closed Cup)
_____ Sulfide (Quantitative)
_____ Cyanide (Quantitative)
_____ PCB's
_____ Others: _____
_____
_____

AR300238

B. Other Analysis: _____
_____
_____
_____

FORM LAB-3
BY _____ DATE _____
CHKD. BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

CHARACTERIZATION/COMPATABILITY ANALYSIS SUMMARY

COMPOSITE SAMPLE NO. C-_____

SAMPLE TYPE: Solid ____ Liquid ____ Sludge ____ Multilayered ____

OPEN-CUP IGNITABILITY: Ignites when heated ___ Does not ignite ___

Burns ___ Rapidly ___ Moderately ___ Slowly ___

When heat is removed: Continues to burn ___ Flame Sooty ___
Burns for a short period ___
Does not continue to burn ___

OPEN-CUP FLASH POINT: _____°F CLOSED-CUP FLASH POINT: _____°F

BIELSTEINS TEST FOR HALOGENS: Present ___ Absent ___

REACTIVITY (Water):

- Solubility: None ___ Slight ___ Moderate ___ Complete ___
- Temperature of Reactivity: Increase __ Decrease __ No Change ___

pH DETERMINATION: Paper ___ Below 3 ___
Meter ___ Above 3 ___

- If pH <3; HNO_3 Present ___ Absent ___
  If pH >3; CN^- Present ___ Absent ___ EST AMT ___
  S^{--} Present ___ Absent ___ EST AMT ___

OXIDIZABLE MATERIAL: (KI-Starch Paper) Present ___ Absent ___

PEROXIDES: (Peroxide Paper) Present ___ Absent ___

WASTE CLASSIFICATION: _____

_____

_____

_____

SECOND-LEVEL COMPOSITE SAMPLE NO. CC-_____

Comments: ND = None detected; NA = Not analyzed

FORM LAB-4
BY _____ DATE _____
CHKD. BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

OTHER ANALYSIS SUMMARY

SECOND-LEVEL COMPOSITE SAMPLE NO.: CC-_____

ORGANIC ANALYSIS:		CONCENTRATION:
Total organic halogen (TOX)		
Total organic carbon (TOC)		
Volatiles:		
Nonvolatiles:		

INORGANIC ANALYSIS:		
Nonmetals:	Cyanide	
Metals:	Arsenic (As)	
If performed on EP	Barium (Ba)	
toxity test extract:	Cadmium (Cd)	
Initial pH _____	Chromium (Cr)	
Final pH _____	Lead (Pb)	
Amount of 0.5N acetic	Mercury (Hg)	
acid added _____ mP	Selenium (Se)	
	Silver (Ag)	
Others:		

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FORM LAB-5
BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

WASTE ANALYSIS SUMMARY

SECOND-LEVEL COMPOSITE SAMPLE NO.: CC-_____

WASTE DESCRIPTION:

Principal Contaminant: _____ Concentration: _____ ppm

EPA Waste Code: _____

Form: Solid _____ Liquid _____

Characterization Summary:

- pH: _____
- Flash Point: _____ F°
- Reactive: Yes _____ No _____
- Cyanides: Yes _____ No _____
- Sulfides: Yes _____ No _____
- Oxidizers: Yes _____ No _____
- PCBs: Yes _____ No _____ Concentration: _____

WASTES TO BE HANDLED UNDER THIS CLASSIFICATION:

____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____
____-____-____	____-____-____	____-____-____

AR300241

ATTACH ADDITIONAL SHEETS AS NECESSARY

FORM LAB-6
BY _____ DATE _____
CHKD. BY _____ DATE _____

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

ATOMIC ABSORPTION
DATA SHEET

ELEMENT _____

CALIBRATION INFORMATION

STANDARD	READOUT

READOUT UNITS

_____

_____

SAMPLE IDENTIFICATION	ABS	READOUT CONCENT.	DILUTION FACTOR	REPORTED CONCENT.

Comments: _____

AR300242

HAZARDOUS WASTE CRITERIA (ppm)

As <5.0	Hg <0.20
Ba <100	Pb <5.0
Cd <1.0	Se <1.0
Cr <5.0	Ag <5.0

FORM LAB-7

Project Name HRANICA WASTE SITE

Tested By _____ Date _____
Calc. By _____ Date _____
Checked By _____ Date _____

Buffalo Township, PA
Project No. X83-1344DW
Sheet No. _____ of _____

G.C. STANDARD CALIBRATION

Standard ID No. _____ Standard Calibration No. _____

Compounds _____ _____ _____ _____

Concentration _____ _____ _____ _____

Std._____ Conc._____ tR___min. Std._____ Conc._____ tR___min.

Inj: No.	Injection Vol. (ul)	Area	Inj: No.	Injection Vol. (ul)	Area
1			1		
2			2		
3			3		
4			4		
Mean			Mean		

Std._____ Conc._____ tR___min. Std._____ Conc._____ tR___min.

Inj: No.	Injection Vol. (ul)	Area	Inj: No.	Injection Vol. (ul)	Area
1			1		
2			2		
3			3		
4			4		
Mean			Mean		

Detector: _____ Temp. _____ Flow _____cc/min N_2

Run Conditions: Temp 1 _____ °C Time 1 _____ °C Rate _____ °C/min
Temp 2 _____ °C Time 2 _____ °C

Column Packing _____ Mesh AR300243

Comments: _____

FORM LAB-8 Project Name HRANICA WASTE SITE

Tested By _____ Date _____ Buffalo Township, PA
Calc. By _____ Date _____ Project No. X83-1344DW
Checked By _____ Date _____ Sheet No. _____ of _____

G.C. SAMPLE ANALYSIS

___ Soil ___ Solid ___ Other ___ Liquid ___ Semisolid (Sludge)

Date Sampled_____ Staging Cell No._____ Sample No._____

Standard Calibration No._____ Standard ID No._____ Run No._____

Amount of Sample Used____ Extraction Volume___ml Dilution Factor____

Compound_____ tR____min			Compound_____ tR____min		
Inj. No.	Inj. Volume (ul)	Conc. (or Amt.)	Inj. No.	Inj. Volume (ul)	Conc. (or Amt.)
1			1		
2			2		

Compound_____ tR____min			Compound_____ tR____min		
Inj. No.	Inj. Volume (ul)	Conc. (or Amt.)	Inj. No.	Inj. Volume (ul)	Conc. (or Amt.)
1			1		
2			2		

Comments: _____

For G.C. condition, please check chromatogram listings.

FORM LAB-9
CHKD. BY ____________ DATE ________

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

PREPARATION OF CONCENTRATED STOCK STANDARDS

No.: __________ Date: __/__/__ Chemist: ____________________
Compound: ____________ Lot No.: ____________ Purity: __________ %
Final Gross Weight: ____________ g Dilution Vol.: ____________ ml
*Tare Weight: ____________ g Concentration: ____________ ng/ul
Net Weight: ____________ g
**Adj. Net Weight: ____________ mg

No.: __________ Date: __/__/__ Chemist: ____________________
Compound: ____________ Lot No.: ____________ Purity: __________ %
Final Gross Weight: ____________ g Dilution Vol.: ____________ ml
*Tare Weight: ____________ g Concentration: ____________ ng/ul
Net Weight: ____________ g
**Adj. Net Weight: ____________ mg

No.: __________ Date: __/__/__ Chemist: ____________________
Compound: ____________ Lot No.: ____________ Purity: __________ %
Final Gross Weight: ____________ g Dilution Vol.: ____________ ml
*Tare Weight: ____________ g Concentration: ____________ ng/ul
Net Weight: ____________ g
**Adj. Net Weight: ____________ mg

No.: __________ Date: __/__/__ Chemist: ____________________
Compound: ____________ Lot No.: ____________ Purity: __________ %
Final Gross Weight: ____________ g Dilution Vol.: ____________ ml
*Tare Weight: ____________ g Concentration: ____________ ng/ul
Net Weight: ____________ g
**Adj. Net Weight: ____________ mg

---

* If weighing into a beaker, this is the empty beaker weight. If weighing from a dropping bottle, this is the initial weight of bottle and contents.

**Correct for purity of primary standard.

FORM LAB-10
CHKD. BY ____________ DATE ________

HRANICA WASTE SITE
Buffalo Township, PA
Project No. X83-1344DW

PREPARATION OF FINAL WORKING STANDARD SOLUTIONS

No.: __________ Date: 4 / / Chemist: ______________

	Compound	Parent Sol. No.	Conc. of Parent Sol. (ng/ul)	Aliq. Vol. (ml)	Dilution Vol. (ml)	Final Conc. (ng/ml)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

No.: __________ Date: / / Chemist: ______________

	Compound	Parent Sol. No.	Conc. of Parent Sol. (ng/ul)	Aliq. Vol. (ml)	Dilution Vol. (ml)	Final Conc. (ng/ml)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

No.: __________ Date: / / Chemist: ______________

	Compound	Parent Sol. No.	Conc. of Parent Sol. (ng/ul)	Aliq. Vol. (ml)	Dilution Vol. (ml)	Final Conc. (ng/ml)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

APPENDIX E

ECOLOGY AND ENVIRONMENT FIT DATA, 1981

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Central Regional Lab, Region III

DATE: June 2, 1981

SUBJECT: NEIC Samples for Hranica Landfill and Folcroft Dump
810512-05 - 11; 81051305-13

FROM Rick Dreisch
Chemist

TO James W. Marks
Chief, Lab Section

THRU: T. O. Munson, Ph.D.
Chief, Organic Analysis Unit

The above samples were analyzed for Purgeable Organic compounds utilizing the organic SOP of Method 624.

The nominal detection limit for most compounds is 100 µg/l (ppb). I found no compound above that detection limit for any compound identifiable by Method 624.

Lab #	
810512-05	Hranica Landfill, Western Seep
-06	Hranica Landfill, Western Seep-Spike
-07	Hranica Landfill, Western Seep-Dup.
-08	Hranica Landfill, Oak Tree Seep
-09	Hranica Landfill, Upper Oak Seep
-10	Hranica Landfill, Ravine Stream
-11	Hranica Landfill, Blank
810513-05	Folcroft Dump, Auger Location #5 8"
-06	Folcroft Dump, Auger Location #5 30"
-07	Folcroft Dump, Auger Location #5 48"
-08	Folcroft Dump, Auger Location #5 48"-Dup.
-09	Folcroft Dump, Auger Location #5 48"-Spike
-10	Folcroft Dump, Auger Location #3
-11	Folcroft Dump, Dredge Soils-Opp. Well #46
-12	Folcroft Dump, East Side Leachate
-13	Folcroft Dump, Blank

RD:jr

cc: Patricia Krantz

AR300249

EPA Form 1320-6 (Rev. 3-76)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Central Regional Lab, Region III

DATE: June 15, 1981

SUBJECT: NEIC Samples (Hranica Landfill)
81051114-20 (5/26/81 - 6/11/81)

FROM: John Austin
Chemist

Joseph Slayton
Chemist

TO: James W. Marks
Chief, Lab Section

THRU: T. O. Munson, Ph.D
Chief, Organic Analysis Unit

Sample extracts prepared at the National Enforcement Investigation Center, Denver, Colorado were received for analysis. Examination of the supplied GC-FID screens of all extracts found the extracts free of significant concentrations. The extracts were then concentrated to one milliliter prior to analysis.

Samples were examined for the presence of organic compounds listed as "Base/Neutral" and "Acid" extractable priority pollutants using gas chromatography/mass spectrometry. Concentrations of these compounds were determined using the relative response of authentic standards to the internal standard. The results of this analysis is summarized in Table I. The approximate detection limit for each compound that was tested for but not detected are listed in Table II.

Samples were also examined for the presence of compounds in addition to those on the priority pollutant list. Tentative identification of these compounds was made on comparison of sample spectra to the EPA/NIH Mass Spectral Library. Concentrations of these compounds were estimated based on the response of the internal standard. The results of this analysis is in Table III.

JA:JS:jr

cc: Patricia Krantz

AR300250

EPA Form 1320-6 (Rev. 3-76)

Table I

Summary of Priority Pollutant Analysis

Base/Neutral Extracts

No "Base/Neutral" priority pollutant compounds were detected in any of the extracts. The minimum detectable amounts are listed in Table II.

Acid Extracts

810511-17 Oak Tree Seep

Phenol was present in trace quantity (95 ppb)

810511-18 Upper Oak Seep

An unknown compound was present which had the same retention time and base peak (122 m/e) as 2,4-dimethylphenol. However the mass spectrum of the compound did not adequately match that of 2,4-dimethylphenol for a positive identification.

No other "acid" priority pollutant compounds were detected in the other extracts. The minimum detectable amounts are listed in Table II.

Table I

ORGANIC PRIORITY POLLUTANTS - DATA SUMMARY

Approximate minimum detectable concentrations

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# _____

DESCRIPTION _____

BASE/NEUTRALS UNITS PPB*

1.	ACENAPHTHENE	95
5.	BENZIDINE	2200
8.	1,2,4-TRICHLORODENZENE	95
9.	HEXACHLORODENZENE	95
12.	HEXACHLOROETHANE	80
18.	BIS(2-CHLOROETHYL)ETHER	290
20.	2-CHLORONAPHTHALENE	95
25.	1,2-DICHLORODENZENE	95
26.	1,3-DICHLORODENZENE	220
27.	1,4-DICHLORODENZENE	250
28.	3,3'-DICHLORODENZIDINE	830
35.	2,4-DINITROTOLUENE	290
36.	2,6-DINITROTOLUENE	95
37.	1,2-DIPHENYLHYDRAZINE(B)	1100
39.	FLUORANTHENE	110
40.	4-CHLOROPHENYLPHENYLETHER	210
41.	4-BROMOPHENYLPHENYLETHER	95
42.	BIS(2-CHLOROISOPROPYL)ETHER	315
43.	BIS(2-CHLOROETHOXY)METHANE	270
52.	HEXACHLOROBUTADIENE	45
53.	HEXACHLOROCYCLOPENTADIENE	500
54.	ISOPHORONE	110
55.	NAPHTHALENE	80
56.	NITRODENZENE	95
62.	N-NITROSODIPHENYLAMINE(A)	95
63.	N-NITROSODI-N-PROPYLAMINE	400
66.	BIS(2-ETHYLHEXYL)PHTHALATE	130
67.	BUTYLDENZYLPHTHALATE	130
68.	DI-N-BUTYLPHTHALATE	130
69.	DI-N-OCTYLPHTHALATE	130
70.	DIETHYLPHTHALATE	95
71.	DIMETHYLPHTHALATE	80
72.	BENZO(A)ANTHRACENE	390
73.	BENZO(A)PYRENE	125
74.	3,4-BENZOFLUORANTHENE	240
75.	BENZO(K)FLUORANTHENE	130
76.	CHRYSENE	130
77.	ACENAPHTHYLENE	180
78.	ANTHRACENE	95
79.	BENZO(G,H,I)PERYLENE	210
80.	FLUORENE	95
81.	PHENANTHRENE	270
82.	DIDENZO(A,H)ANTHRACENE	130
83.	INDENO(1,2,3-C,D)PYRENE	190
84.	PYRENE	95

*The detection limits are significantly high because only 20 ml of original sample was extracted by NEIC.

(A) MEASURED AS DIPHENYLAMINE
(B) MEASURED AS AZOBENZENE

Table II (continued)

ORGANIC PRIORITY POLLUTANTS

Approximate minimum detectable concentrations

PHENOLS UNITS ppb

21.	2,4,6-TRICHLOROPHENOL	130*
22.	PARACHLOROMETACRESOL	150
24.	2-CHLOROPHENOL	170
31.	2,4-DICHLOROPHENOL	130
34.	2,4-DIMETHYLPHENOL	130
57.	2-NITROPHENOL	180
58.	4-NITROPHENOL	120
59.	2,4-DINITROPHENOL	2100
60.	4,6-DINITRO-O-CRESOL	1200
64.	PENTACHLOROPHENOL	180
65A.	PHENOL	75

*The detection limits are significantly high because only 20 ml of original sample was extracted by NEIC.

Table III

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-14

DESCRIPTION Hranica Landfill Western Seep

UNITS _____

NAME

Base/Neutral Extract

No priority pollutant compounds detected. No other compounds >50 ppb detected.

Acid Extract

Not analyzed. Sample extract contaminated from loss of teflon cap liner prior to shipment.

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-15

DESCRIPTION Hranica Landfill Western Seep Spiked Sample

UNITS _____

NAME	% Recovery
Base/Neutral Extract	
2,6-dimethylpiperidine	Not Found
1,4-dichlorobenzene	36.5
aniline (Benzenamine)	35.0*
2-chloroaniline (2-chlorobenzeamine)	34.5*
isophrone (3,5,5-trimethyl-2-cyclohexene-1-one)	66.2
1,2-dihydroacenaphthylene	79.1
Acid Extract	
2-chlorophenol	173.3
2,4-dichlorophenol	141.0
p-chloro-m-cresol	121.9
2,4-dimethylphenol	136.2
phenol	183.9

*No standard available, calculated assuming a response factor of one.

Table III (continued)

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-16

DESCRIPTION Hranica Landfill Western Seep Duplicate

UNITS ppb

NAME	
Base/Neutral Extract	
No priority pollutant compounds detected	
Scan 676 unknown Base Peak 156 m/e	100-1000
Scan 756 unknown Base Peak 149 m/e	100-1000
(Scan 713 unknown Base Peak 135 m/e) from blank	10-100
Acid Extract	
No priority pollutants detected.	
Scan 616 unknown Base Peak 160	1-10

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-17

DESCRIPTION Hranica Landfill Oak Tree Seep

UNITS ppb

NAME	
Base/Neutral Extract	
No priority pollutants detected	
Scan 678 unknown Base Peak 156 m/e	10-100
(Scan 716 unknown Base Peak 135 m/e) from blank	10-100
Scan 761 unknown Base Peak 149 m/e	10-100
Scan 887 unknown Base Peak 149 m/e	10-100
Acid Extract	
phenol	trace (94)
Scan 195 unknown	10-100
Scan 206 unknown	100-1000
Scan 226 unknown	100-1000
Scan 424 unknown	10-100
methylphenol isomer	100-1000

Table III (continued)

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-18

DESCRIPTION Hranica Landfill Upper Oak Seep

UNITS ppb

NAME	
Base/Neutral Extract	
No priority pollutant compounds detected.	
Scan 366 unknown Base Peak 73 m/e	10-100
Scan 679 unknown Base Peak 156 m/e	10-100
(Scan 716 unknown Base Peak 135 m/e) from blank	100-1000
Scan 759 unknown Base Peak 149 m/e	10-100
Scan 888 unknown Base Peak 149 m/e	10-100
Acid Extract	
Scan 301 unknown Base Peak 122 m/e similar to	
2,4-dimethylphenol (Priority Pollutant)	(10-100) trace
No other compounds >50 ppb were detected	

AR302258

Table III (continued)

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-19

DESCRIPTION Hranica Landfill Ravine Stream

UNITS ppb

NAME	
Base/Neutral Extract	
No priority pollutants detected.	
Scan 716 unknown Base Peak 135 m/e from blank	100-1000
Scan 763 unknown Base Peak 135 m/e	10-100
Scan 889 unknown Base Peak 149 m/e	10-100
Acid Extract	
No priority pollutants detected.	
Scan 321 Base Peak 71 m/e	10-100
Scan 621 Base Peak 160 m/e	10-100

AR800256

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ Lab# 810511-20

DESCRIPTION Hranica Landfill Reagent Blank

UNITS ppb

NAME	
Base/Neutral Extract	
No priority pollutant compounds detected.	
Scan 716 unknown Base Peak 135 m/e	
	100-1000
Acid Extract	
No priority pollutant compounds detected.	
No compounds >50 ppb detected.	

Quality Control Summary

	5-26 (Base extracts)					5-28 (Base extracts)								
Run #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
GC/MS Calibration (FC 43)	X					X								
GC/MS Performance (DFTPP)		X					X							
Internal Standard			X	X	X			X	X	X	X	X	X	X
Method Blank														X
Calibration Standards			X					X	X					

	6-4 (Acid extracts)								
Run #	15	16	17	18	19	20	21	22	23
GC/MS Calibration (FC 43)	X								
GC/MS Performance (DFTPP)		X							
Internal Standard			X	X	X	X	X	X	X
Method Blank									X
Calibration Standards			X						

Quality Control

1. Each day before acquisition of any samples the mass spectrometer is calibrated using FC43.

2. The calibration is verified by obtaining the spectra of a known compound (DFTPP). All mass assignments and relative abundances are found to be in acceptable ranges or the instrument is adjusted until suitable spectra of the known are obtained.

3. Immediately before analysis each sample is spiked with an internal standard D10-anthracene. All quantitation or estimates of concentration are made in comparison to the internal standard.

4. Mixed standards of extractable priority pollutants are analyzed before each group of samples. The relative response of each compound versus the internal standard is determined for use in quantitation.

5. For each group of samples extracted a method blank is prepared and examined for laboratory introduced contamination.

	R-41	R-42	R-43	R-44	R-45	R-46	R-47	R-48	R-49	R-50	R-51
Reagent Blank			✓						✓		
Method Blank	✓							✓			
GC/MS Ref. Stds.	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Instrument Blk.							✓				
Internal Standards	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Standards (Purgeables)		✓									
Duplicate Field											✓

	R-52	R-53	R-54	R-55	R-56	R-57	R-58	R-59	R-60	R-61	R-63	R-6
Reagent Blank												
Method Blank						✓		✓				
GC/MS Ref. Stds.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instrument Blk.												
Internal Standards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standards (Purgeables)							✓					
Duplicate Field												✓

	%RSD[1]
Bromochloromethane	21
2-Bromo-1-chloropropane	6.5
1,4-Dichlorobutane	6.9
4-Bromo-1-Fluorobenzene	4.5

[1]Averages of at least 21 runs, some runs had system noise spikes which caused erronous values not included in the data.

HRANICA.

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INORGANICS ANALYSIS DATA SHEET

585-123

LABORATORY NAME VersAr, Inc SAMPLE NO. MC 8202

LAB SAMPLE ID NO. 1593 QC REPORT NO. _____

TASK 1 (Elements to be identified and measured)

		ug/l			ug
1.	Aluminum	500.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	70.
3.	Barium	10.	12.	Zinc	70.
4.	Beryllium	< 2.	13.	Boron	30.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	8500.
7.	Copper	< 20.	16.	Magnesium	4100.
8.	Iron	1740.	17.	Sodium	2,500.
9.	Lead	< 40.			

TASK 2 (Elements to be identified and measured)

		ug/l			ug
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.	6.	Tin	< 20.
3.	Selenium	< 10.	7.	Silver	< 20.
4.	Thallium	< 10.			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	mg
2.	Fluoride	mg/l	5.	pH	Uni
3.	Sulfide	mg/l	6.	TOC	mg

AR300264

COMMENTS:

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bott
e) average of two replicate determinations
f) insufficient sample aliquot

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INORGANICS ANALYSIS DATA SHEET

585-123

LABORATORY NAME Versar, Inc SAMPLE NO. MC 8203

LAB SAMPLE ID NO. 1594 QC REPORT NO.

TASK 1 (Elements to be identified and measured)

		ug/l			ug
1.	Aluminum	600.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	190.
3.	Barium	100.	12.	Zinc	30.
4.	Beryllium	< 2.	13.	Boron	250.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	58,700.
7.	Copper	< 30.	16.	Magnesium	11,200.
8.	Iron	6,400.	17.	Sodium	33,800.
9.	Lead	< 40.			

TASK 2 (Elements to be identified and measured)

		ug/l			u
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.	6.	Tin	< 20.
3.	Selenium	< 10	7.	Silver	< 20.
4.	Thallium	< 10			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	m
2.	Fluoride	mg/l	5.	pH	U
3.	Sulfide	mg/l	6.	TOC	m

AR300265

COMMENTS:

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bc
e) average of two replicate determinations
f) insufficient sample aliquot

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INORGANICS ANALYSIS DATA SHEET

85-123

LABORATORY NAME Versar, Inc SAMPLE NO. MC 8204

LAB SAMPLE ID NO. 1595 QC REPORT NO. _____

TASK 1 (Elements to be identified and measured)

		ug/l			ug/l
1.	Aluminum	500.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	440.
3.	Barium	10.	12.	Zinc	30.
4.	Beryllium	< 2.	13.	Boron	30.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	14,100.
7.	Copper	< 20.	16.	Magnesium	6,500.
8.	Iron	1,440.	17.	Sodium	12,400.
9.	Lead	< 48			

TASK 2 (Elements to be identified and measured)

		ug/l			ug/l
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.	6.	Tin	< 20.
3.	Selenium	< 10.	7.	Silver	< 20.
4.	Thallium	< 10.			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	mg
2.	Fluoride	mg/l	5.	pH	Un
3.	Sulfide	mg/l	6.	TOC	mg

AR300266

COMMENTS:

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bot
e) average of two replicate determinations
f) insufficient sample aliquot

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INORGANICS ANALYSIS DATA SHEET

585-123

LABORATORY NAME Versar, Inc SAMPLE NO. MC 8205

LAB SAMPLE ID NO. 1596 QC REPORT NO. _____

TASK 1 (Elements to be identified and measured)

		ug/l			ug
1.	Aluminum	50.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	< 10.
3.	Barium	< 10.	12.	Zinc	150.
4.	Beryllium	< 2.	13.	Boron	< 10.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	< 100.
7.	Copper	< 20.	16.	Magnesium	< 100.
8.	Iron	< 20.	17.	Sodium	< 100.
9.	Lead	< 40.			

TASK 2 (Elements to be identified and measured)

		ug/l			u
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.	6.	Tin	< 20.
3.	Selenium	< 10.	7.	Silver	< 20.
4.	Thallium	< 10.			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	m
2.	Fluoride	mg/l	5.	pH	U
3.	Sulfide	mg/l	6.	TOC	m

AR300267

COMMENTS:

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bc
e) average of two replicate determinations
f) insufficient sample aliquot

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INORGANICS ANALYSIS DATA SHEET

585-123

LABORATORY NAME Versar, Inc SAMPLE NO. MC 8206

LAB SAMPLE ID NO. 1597 QC REPORT NO.

TASK 1 (Elements to be identified and measured)

		ug/l			ug
1.	Aluminum	100.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	150.
3.	Barium	10.	12.	Zinc	90.
4.	Beryllium	< 2.	13.	Boron	20.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	13,800.
7.	Copper	< 20.	16.	Magnesium	4800.
8.	Iron	320.	17.	Sodium	5000.
9.	Lead	< 40			

TASK 2 (Elements to be identified and measured)

		ug/l			ug
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.	6.	Tin	<20.
3.	Selenium	< 10.	7.	Silver	< 20.
4.	Thallium	< 10.			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	mg
2.	Fluoride	mg/l	5.	pH	Un
3.	Sulfide	mg/l	6.	TOC	mg

COMMENTS:

AR300268

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bot
e) average of two replicate determinations
f) insufficient sample aliquot

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P.O. Box 818 - Alexandria, Virginia 22313 - 703/ 557-2490/FTS-8-557-2490

INORGANICS ANALYSIS DATA SHEET

585-183

LABORATORY NAME Versar, Inc. SAMPLE NO. MC 8207

LAB SAMPLE ID NO. 1598 QC REPORT NO. _____

TASK 1 (Elements to be identified and measured)

		ug/l			ug
1.	Aluminum	200.	10.	Nickel	< 20.
2.	Chromium	< 10.	11.	Manganese	< 10.
3.	Barium	10	12.	Zinc	90.
4.	Beryllium	< 2.	13.	Boron	< 10.
5.	Cadmium	< 5.	14.	Vanadium	< 10.
6.	Cobalt	< 10.	15.	Calcium	12,800.
7.	Copper	< 20.	16.	Magnesium	3,800.
8.	Iron	200.	17.	Sodium	3,100.
9.	Lead	40.			

TASK 2 (Elements to be identified and measured)

		ug/l			ug.
1.	Arsenic	< 10.	5.	Mercury	< 1.
2.	Antimony	< 20.[e]	6.	Tin	< 20.[e]
3.	Selenium	< 10.	7.	Silver	< 20.
4.	Thallium	< 10.			

TASK 3 (Elements to be identified and measured)

1.	Ammonia	mg/l	4.	Cyanide	mg
2.	Fluoride	mg/l	5.	pH	Uni
3.	Sulfide	mg/l	6.	TOC	mg

COMMENTS:

a) with a detection limit of
b) with a detection limit of
c) with a detection limit of
d) analyzed on a sample aliquot preserved with HCl from F/pH sample bot
e) average of two replicate determinations
f) insufficient sample aliquot

AR300269

Environmental Protection Agency
Office of Enforcement

National Enforcement Investigations Center
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region no.	Regional contact
3	LINDA YOUNG-BOORNAZIAN
NEIC-project no.	**Project name**
633	HRANICA LANDFILL

NEIC sample no.	Region sample no.	SAMPLE DESCRIPTION	Collection Date	Collection Time	A Total Metals	B Acid Extractable Metals	C Total Mercury	D Strong Acid Anions	E Base/Neutral Organics	F Acidic, Phenolic Organics	G General Organic Extract	H Volatile Organics	I Other (Specify)	Sample Phase No.	COMMENTS
115	1	WESTERN SEEP	4/7/81	15:20			81051205					X		1	H - DUPLICATE
115S	1	WESTERN SEEP - SPIKE	4/7/81	15:20			81051206					X		1	H - DUPLICATE
115D	1	WESTERN SEEP - DUPLICATE	4/7/81	15:20			81051207					X		1	H - DUPLICATE
116	2	OAK TREE SEEP	4/7/81	15:20			81051208					X		1	H - DUPLICATE
117	3	UPPER OAK SEEP	4/7/81	15:20			81051209					X		1	H - DUPLICATE
118	4	RAVINE STREAM	4/8/81	10:45			81051210					X		1	H - DUPLICATE
119	—	REAGENT BLANK	—				81051211					X		1	~~H - DUPLICATE~~ rlk

AR300270

Shipped by (signature)	Date/Time	Received by (signature)	Date/Time
sealed for shipment via Federal Express	5/11/81 2:00		
Relinquished by (sign.)	**Date/Time**	**Received by (signature)**	**Date/Time**
[signature]	5/11/81 2:00	[signature]	5/12/81 1330

SAMPLE PHASES: 1 aqueous
2 solid
3 non-aqueous

Environment rotection Agency
Office of Enforcement

National Enforcement Investig. .ns Center
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region no.	Regional contact
3	LINDA YOUNG-BOORNAZIAN

NEIC-project no.	Project name
633	HRANICA LANDFILL F3-8008-06

NEIC sample no.	Region sample no.	SAMPLE DESCRIPTION	Collection Date	Collection Time	SAMPLE EXTRACTS PREPARED A Total Metals	B Acid Extractable Metals	C Total Mercury	D Strong Acid Anions	E Base/Neutral Organics	F Acidic, Phenolic Organics	G General Organic Extract	H Volatile Organics	I Other (Specify)	Sample Phase No.	COMMENTS
115	1	WESTERN SEEP	4/7/81	15:20	81051114				X	X				1	[redacted]
115S	1	WESTERN SEEP - SPIKE	4/7/81	15:20	81051115				X	X				1	[redacted]
115D	1	WESTERN SEEP - DUPLICATE	4/7/81	15:20	81051116				X	X				1	[redacted]
116	2	OAK TREE SEEP	4/7/81	15:20	81051117				X	X				1	[redacted]
117	3	UPPER OAK SEEP	4/7/81	15:20	81051118				X	X				1	[redacted]
118	4	RAVINE STREAM	4/8/81	10:45	81051119				X	X				1	[redacted]
119	—	REAGENT BLANK	—	—	81051120				X	X				1	[redacted]

Shipped by (signature)	Date/Time	Received by (signature)	Date/Time
sealed for shipment via Federal Express	5/8/81 3:00		
Relinquished by (sign.)	**Date/Time**	**Received by (signature)**	**Date/Time**
[redacted]	5/8/81 3:00	Janet Roberson	5/11/81 1130

SAMPLE PHASES: 1 aqueous
2 solid
3 non-aqueous

AR300271

Hranica Landfill
Sarver, Pennsylvania
TDD No. F3-8008-06
EPA No. PA-132, 133

SAMPLE LOG

Environmental (Water) Samples

Organic Traffic Report No.[1]	Sample Description	Date Sampled	Inorganic Traffic Report No.[2]
C0500	Tributary to McDowell Run - upstream	4/8/81	MC8202
C0501	Ravine Stream	4/8/81	MC8203
C0502	Tributary to McDowell Run - downstream	4/8/81	MC8204
C0503	Sample Blank	4/8/81	MC8205
C0504	Obringer Farm Spring (at springhouse)	4/8/81	MC8206
C0505	Obringer Drinking Water Supply Spring	4/8/81	MC8207

1. Organic samples sent to: ERCO Labs, 185 Alewise Brook Parkway, Cambridge, MA 02130, ATTN: Dallas Waite. Shipped via Federal Express, airbill #327424985.

2. Inorganic samples sent to: VERSAR, Inc., 6621 Electronic Drive, Springfield, VA 22151. Shipped via Federal Express, airbill #327424996.

Hazardous (Multi-Phase) Samples

Sample No.	Sample Description	Date Sampled
1	Western Leachate Seep	4/7/81
2	Oak Tree Leachate Seep	4/7/81
3	Upper Oak Tree Leachate Seep	4/7/81
4	Ravine Leachate Seep	4/7/81

Samples sent to: NEIC, Bldg. 53, Box 25227, Denver Federal Center, Denver, CO 80225. Shipped via Federal Express, airbill #327425011.

AR300273

APPENDIX F

D'APPOLONIA ASH SAMPLING PROGRAM

D'APPOLONIA

WASTE MANAGEMENT SERVICES

February 1, 1984

Project No. X83-1344-DW

Mr. Laurence N. Streff
Manager, Environmental Engineering
& Control
PPG Industries, Inc.
Coatings and Resins Division
P.O. Box 9
Allison Park, PA 15101

Supplemental Data Report
Ash Residue Testing Program
Hranica Hazardous Waste Site
Sarver, Pennsylvania

Dear Mr. Streff:

D'Appolonia Waste Management Services, Inc. (D'Appolonia), has conducted testing to determine the nature and extent of the ash residue located near the southwest corner of the Hranica site. This sampling and analysis program was designed to provide a sufficient data base for the determination of whether the ash is a hazardous waste due to heavy metal concentrations in the leachate generated by the EP toxicity testing procedure. Additional characterization tests were also performed to determine the acid-base environment of the waste as an indicator of potential leachability from normal rainfall.

The design and implementation of the program were generally in accordance with discussions with PPG Industries, Inc. (PPG), at our meeting of January 5, 1984. Some modifications of the sample collection and compositing methods were made during the course of the activities to respond to conditions encountered and to expedite the availability of results. Additional testing was initiated based on review of the earlier results. This subsequent effort, which involved a significantly expanded testing regimen, was conducted pursuant to discussions with PPG on January 20 and 23, 1984.

This letter report supplements our earlier report of January 17, 1984, addresses additional data made available since that time, and clarifies sampling and compositing methods. Our evaluation of the data and conclusions regarding the ash bank material with respect to EP toxicity criteria are also presented.

AR300275

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FIELD SAMPLING

Samples of the ash material were taken from one exposed face of each test pit using a common shovel. This digging penetrated the sidewall/slope to a depth of approximately three to six inches, and the portion of the ash sampled was typically located at a depth of three to six inches from the wall face. Samples were uniformly collected throughout the entire depth of each test pit.

Because the width of the ash site is not uniform, the amount of material represented by each test pit sample varies. Table 1 presents an approximate distribution of materials represented by each sample. These values were calculated by determining cross-sectional areas at various longitudinal locations in the ash bank and using the distances between sections to calculate volumes (i.e., average end area method). Each test pit sample was then assumed to represent all materials in the corresponding section of the ash bank.

PHASE 1 TESTING

Formulation of Samples for Analysis

Upon arrival at the laboratory, each of the six test pit samples was reblended and aliquots withdrawn for EP toxicity and characterization testing. The materials were mixed in lifts or layers, removing each layer from the bucket once mixed. The blending of each test pit sample was accomplished using a steel hand trowel on each of three lifts of the material in the bucket. The top lift was blended and a portion of material then taken and placed in a clean 1,000-milliliter glass bottle. The top layer was then removed from the bucket, the middle layer subsequently mixed, and an aliquot of similar size from the middle layer was placed in the same glass bottle. The same procedure was then followed for the bottom portion of the sample. After the 1,000-milliliter test specimen was placed in the glass bottle, the unused materials were replaced in the sample bucket.

Once all six 1,000-milliliter (approximately 1,300 to 1,500 grams each) test specimens were prepared, the specimens were remixed using a stainless steel spatula and by vigorous shaking. Aliquots (100 grams) were withdrawn for EP toxicity testing by taking with a spatula equal portions from the top, middle, and bottom of the bottle. These aliquots were then subjected to EP toxicity testing. Additional aliquots were removed from each bottle in the same fashion for use in characterization testing.

The total amount of sampled material (on the order of 200 to 300 pounds) was too large to allow efficient mixing of all materials to form composite samples. For this reason, an alternative approach was employed

Aliquots from each of the six test specimens were taken in the same manner as the aliquots for EP toxicity testing of individual samples and then combined to form a composite sample to represent all materials present in the ash bank. Two composite analyses were requested by PPG.

The amount of material taken from each test pit sample was proportional to the depth of the test pit (Table 1). As indicated in Table 1, the composite distribution varied somewhat from the calculated portions of the ash pile represented by each test pit. On an overall basis, it is believed that the composite samples reasonably represented the materials present in the ash bank.

Laboratory Analysis

The EP toxicity analysis of composite samples was performed in accordance with the procedure developed by the U.S. Environmental Protection Agency (EPA) as given in 40CFR261, Appendix B.

Interpretation of Results

Table 2 provides the results of the EP toxicity analysis for the two composite samples requested by PPG. Total heavy metals were also determined on Composite 2 of the ash material using the American Society for Testing and Materials (ASTM) 1:4 acid extraction procedure. These results are given in Table 3.

The Phase 1 testing data for the composite samples confirm that the material in the ash bank does not contain significant quantities of leachable arsenic, barium, chromium, mercury, selenium, or silver. The data on these metals are quite consistent and no samples exhibited concentrations more than one percent of the criteria for designation as EP toxic waste for any of these metals. Cadmium concentrations were higher than EP toxicity limits in one of the preliminary surface samples taken in December but were consistently less than 20 percent of this limit in the Phase 1 composite samples. Considering that the earlier surface samples were, in part, selected to represent visually contaminated ash, it is concluded from the Phase 1 data that the overall ash bank material is not EP toxic due to cadmium.

Measured lead concentrations in the two composite samples are quite variable. While none of the individual test pit samples showed lead concentrations greater than 0.92 milligram per liter, two composite samples taken from the same sample bottles showed concentrations ranging from 0.02 to 7.75 milligrams per liter. The possible explanations for this divergent information follow:

- Analytical error due to equipment malfunction or errors in dilution, calibration, etc.

- Samples are not in sufficient size or number to be representative.

Although analytical error is possible, a thorough review of instrument logs, calibration plots, and data calculations did not reveal any discrepancies. With each lot of samples analyzed, spiked samples of known concentration (received from the EPA) were also tested and no significant variances were indicated.

It is more likely that the samples tested are not representative. When taking small aliquots of a heterogeneous material, significant error may be introduced because of the nonrepresentativeness of the individual, small aliquots. Either a great number of tests must be performed (to establish population statistics) or a much larger, representative sample must be formulated and analyzed. The Phase 2 testing program was designed to improve the data on the properties of the total ash bank.

PHASE 2 TESTING

The objective of the Phase 2 testing was to formulate and analyze a sample of sufficient size to enhance the available data on the total ash bank characteristics; the fundamental basis of the experimental design is that the analytical testing results of the formulated sample, when combined with Phase 1 results, would be indicative of the population properties of the ash material.

Sample Formulation

Large aliquots were withdrawn from each of the six test pit samples to form an overall composite sample (Table 4). The mixing process for aliquot selection was identical to that for the Phase 1 testing described previously. These materials were dried, ground to minus 60 mesh (0.25 millimeter), and blended on a rotary mixer. Glass spheres were added to the waste during the mixing to enhance material turnover and blending. An overall composite 2.0-kilogram sample was then subjected to analysis.

Analysis

Once blended, the material was subjected to the toxic extraction procedure of deionized water addition, acidification, leaching, and filtration. The generated leachate (approximately 11 gallons) was then stirred and a liquid aliquot was withdrawn for analysis by atomic adsorption spectrophotometry, using the graphite furnace.

Interpretation of Results

Table 5 provides the EP toxicity data developed from testing the 2.0-kilogram composite ash sample. These data support earlier results indicating that the ash does not produce leachate with significant quantities of arsenic, barium, chromium, mercury, selenium, or silver. The cadmium concentration is slightly above the EP toxicity limit (1.08 versus 1.0 milligram per liter), and the lead concentration approaches the EP toxicity limit (4.76 versus 5.0 milligrams per liter).

Using all of the data developed in the testing program, D'Appolonia has calculated the most probable, weighted-average concentrations of heavy metals in the toxic extraction procedure leachate. In presenting the summary in this fashion, the assumption is made that weighted consideration of all of the data provides the best available indication of overall ash material characteristics. The calculation was performed in the following steps:

1. Determine the weighted-average concentration for the six test pit samples considering the percentage of the total ash bank material that each sample represents. The distribution was based on the depth of each test pit versus the total depth of test pit sampling as given in Table 1.

2. Determine the metal contribution based on the size of sample analyzed for: (a) the six 100-gram test pit samples (after adjustments were made in Step 1); (b) the two 100-gram test pit composites; and (3) the one 2.0-kilogram composite.

3. Calculate the weighted-average heavy metal concentration by dividing the total metal contribution by the total weight of samples analyzed (2,800 grams).

Tables 6 and 7 summarize this calculation procedure using cadmium as the example.

These calculations indicate that the overall ash bank material does not produce leachate (at pH 5) that contains heavy metal concentrations in excess of EP toxicity criteria. Lead and cadmium are the only heavy metals produced in appreciable quantities. The toxic extraction procedure leachate (weighted average from all samples) contains 3.73 milligrams per liter of lead (Table 8), which is about 25 percent below the criterion for designation of hazardous waste. This leachate also contained a weighted average of 0.80 milligram per liter of cadmium.

percent below the EP toxicity limit. The ash bank apparently contains inclusions of lead and cadmium materials but, when taken in its entirety, would not produce a leachate (at pH 5) with metal concentrations above EP toxic criteria.

SUMMARY AND CONCLUSIONS

As directed by PPG, D'Appolonia has completed a field sampling and laboratory analysis program focused on the extent and characteristics of the ash residue in the southwest portion of the Hranica site. The overall results of the testing program have shown that the ash is not an EP toxic hazardous waste and that it exhibits a relatively neutral pH and significant neutralization potential. Under normal exposure to rainfall, the heavy metal concentrations in any generated leachate would be expected to be less than those found in the leachate generated by the EP toxicity extraction procedure.

We trust that this submittal satisfies your requirements at this time. D'Appolonia looks forward to continuing work with PPG at the Hranica site and bringing this project to a successful completion. If you have any questions or require additional information and/or clarification, please do not hesitate to contact us.

Respectfully submitted,

Leo M. Brausch, P.E.
Manager, Project Development

LMB:mbu
Enclosures

TABLES

TABLE 1

VOLUMES OF MATERIALS
REPRESENTED BY TEST PIT SAMPLES

TEST PIT NO.	STATION	DEPTH	VOLUME OF ASH BANK REPRESENTED BY SAMPLE[1] (cubic yards)	(% by volume)	COMPOSITE DISTRIBUTION[2] (% by weight)
TP-A	2+65	3.0	170	6	6
TP-B	2+20	7.5	290	10	15
TP-C	1+76	11.5	490	18	22
TP-D	1+34	8.0	640	23	16
TP-E	0+97	10.0	630	22	20
TP-F	0+64	10.5	580	21	21
TOTAL	-	50.5	2,800	100	100

[1]Determined by average end area method for each sector of ash bank.

[2]Distribution was based on depth of sampling in each test pit.

TABLE 2

RESULTS OF PHASE 1 EP TOXICITY
ANALYSIS FOR HEAVY METALS
COMPOSITE SAMPLES[1]

PARAMETER	UNITS	CRITERIA FOR DESIGNATION AS EP TOXIC[2]	SAMPLE IDENTIFICATION		
			COMPOSITE 1	COMPOSITE 2	AVERAGE
Arsenic	mg/ℓ	5.0	<0.001	0.001	<0.001
Barium	mg/ℓ	100.0	0.1	0.98	0.54
Cadmium	mg/ℓ	1.0	0.05	0.16	0.11
Chromium	mg/ℓ	5.0	0.01	0.09	0.05
Lead	mg/ℓ	5.0	0.02	7.75	3.89
Mercury	mg/ℓ	0.2	<0.0002	<0.0002	<0.0002
Selenium	mg/ℓ	1.0	0.011	<0.001	0.0006
Silver	mg/ℓ	5.0	<0.01	<0.01	<0.01

(1) Analysis performed in accordance with procedure given in 40CFR261, Appendix B.

(2) 40CFR261.24.

TABLE 3

RESULTS OF TOTAL METAL ANALYSIS
COMPOSITE 2[1]

PARAMETER	UNITS	CONCENTRATION
Arsenic	mg/kg	5.9
Barium	mg/kg	1,980
Cadmium	mg/kg	100
Chromium	mg/kg	645
Lead	mg/kg	4,060
Mercury	mg/kg	3.2
Selenium	mg/kg	4.1
Silver	mg/kg	4.0

[1]Analyses performed on extract from ASTM 1:4 acid digestion.

TABLE 4

PHASE 2 SAMPLE FORMULATION

ALIQUOT WITHDRAWN

SOURCE	WEIGHT (grams)	PORTION OF TOTAL COMPOSITE (percent)
TP-A	120	6
TP-B	300	15
TP-C	440	22
TP-D	320	16
TP-E	400	20
TP-F	420	21
TOTAL	2,000	100

TABLE 5

SUMMARY OF EP TOXICITY
RESULTS OF HEAVY METALS
2.0-KILOGRAM COMPOSITE[1]

PARAMETER	UNITS	CRITERIA FOR DESIGNATION AS EP TOXIC[2]	CONCENTRATION
Arsenic	mg/ℓ	5.0	0.001
Barium	mg/ℓ	100.0	1.1
Cadmium	mg/ℓ	1.0	1.08
Chromium	mg/ℓ	5.0	0.02
Lead	mg/ℓ	5.0	4.76
Mercury	mg/ℓ	0.2	<0.0002
Selenium	mg/ℓ	1.0	0.008
Silver	mg/ℓ	5.0	<0.01

(1) Analysis performed in accordance with procedure given in 40CFR261, Appendix B.

(2) 40CFR261.24.

TABLE 6

SAMPLE CALCULATION - STEP 1
WEIGHTED-AVERAGE METAL CONCENTRATION IN
TEST PIT SAMPLES[1]

COLUMN 1 TEST PIT SAMPLE NUMBER	COLUMN 2 DISTRIBUTION ACCORDING TO REPRESENTATION OF TOTAL ASH BANK[2]	COLUMN 3 CADMIUM CONCENTRATION IN LEACHATE (mg/ℓ)	COLUMN 4 (COLUMN 2 X COLUMN 3) WEIGHTED CADMIUM CONCENTRATION (mg/ℓ)
TP-A	0.06	0.11	0.0066
TP-B	0.15	<0.01[3]	0.0008
TP-C	0.22	0.07	0.0154
TP-D	0.16	0.11	0.0176
TP-E	0.20	0.08	0.0160
TP-F	0.21	0.18	0.0378
TOTAL	1.00	-	0.094[4]

(1) Sample calculation for cadmium. All other metals were evaluated in the same manner.

(2) Distribution based on depth of individual test pits versus total test pit sampling depth (Table 1).

(3) Concentration taken as 0.005 milligram per liter for purposes of calculation.

(4) Calculated weighted-average concentration for six 100-gram test pit samples.

TABLE 7

SAMPLE CALCULATION - STEPS 2 AND 3
TOTAL WEIGHTED-AVERAGE
METAL CONCENTRATION[1]

COLUMN 1 SAMPLE TYPE	COLUMN 2 SAMPLE SIZE (grams)	COLUMN 3 CADMIUM CONCENTRATION IN LEACHATE (mg/ℓ)	COLUMN 4 (COLUMN 2 X COLUMN 3) CADMIUM CONTRIBUTION (gram-mg/ℓ)
Individual Test Pits	600	0.094[2]	56.52
Composite 1	100	0.05	5.00
Composite 2	100	0.16	16.00
2.0-kg Composite	2,000	1.08	2,160.00
TOTALS	2,800	-	2,237.52

Total weighted average concentration equals the sum of Column 4 divided by the sum of Column 2.

$$= \frac{2,237.52}{2,800} = 0.80 \text{ mg/ℓ}$$

(1) Sample calculation for cadmium. All other metals were evaluated in the same manner.

(2) See Table 6 for calculation.

TABLE 8

SUMMARY OF EP TOXICITY
ANALYSIS FOR HEAVY METALS

PARAMETER	UNITS	CRITERIA FOR DESIGNATION AS EP TOXIC[2]	CONCENTRATION[3]
Arsenic	mg/ℓ	5.0	0.001
Barium	mg/ℓ	100.0	1.1
Cadmium	mg/ℓ	1.0	0.80
Chromium	mg/ℓ	5.0	0.03
Lead	mg/ℓ	5.0	3.73
Mercury	mg/ℓ	0.2	<0.0002
Selenium	mg/ℓ	1.0	0.008
Silver	mg/ℓ	5.0	<0.01

(1) Analysis performed in accordance with procedure given in 40CFR261, Appendix B.

(2) 40CFR261.24.

(3) Weighted-average concentration calculated from all collected data as described in text and Tables 6 and 7.

D'APPOLONIA

WASTE MANAGEMENT SERVICES

February 17, 1984

Project No. 83-1344

Mr. Laurence N. Streff
Manager, Environmental Engineering & Control
PPG Industries, Inc.
Coatings and Resins Division
P.O. Box 9
Allison Park, PA 15101

Ash Residue Leachate Characteristics
When Exposed to Rainfall
Hranica Hazardous Waste Site
Sarver, Pennsylvania

Dear Mr. Streff:

Pursuant to our discussions, D'Appolonia Waste Management Services (D'Appolonia) performed analyses to assess the characteristics of the ash residue material at the Hranica hazardous waste site when exposed to normal precipitation. These analyses included both theoretical calculations and preliminary laboratory experimentation. Results of this evaluation show that the neutralization potential of the ash material is such that leachates and runoff generated from the pile would exhibit a near-neutral pH and the cadmium and lead concentrations in such waters would be significantly less than those determined by the EP toxicity procedure.

THEORETICAL CALCULATIONS

A set of theoretical calculations was developed to evaluate change in cadmium and lead concentrations in the ash pile leachate when exposed to normal rainfall. The calculational procedure was as follows:

- Establish pertinent ash pile properties from field and laboratory data
- Establish normal rainfall properties in the Pittsburgh area from published data
- Calculate the alkalinity consumption in the pile as a result of the rainfall, thereby determining the resultant leachate pH

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- Calculate cadmium and lead concentrations as a function of the pH using solubility relationships.

Ash Pile Properties

The pertinent physical and chemical properties of the ash pile were determined from field observations, the surveying of the area in January 1984, and subsequent laboratory testing of ash samples. Table 1 provides a summary of the ash bank properties used in the analysis.

Rainfall Properties

The average annual rainfall in the Sarver, Pennsylvania area is approximately 40.3 inches (U.S. Department of Commerce, 1961). This rainfall is acidic as a result of the entrainment of atmospheric carbon dioxide forming carbonic acid and strong acids formed from atmospheric emissions. The carbonic acid present in the rainfall reduces the pH to about 5.6; generalized data in the literature indicate that the pH of the rainfall in the Pittsburgh area is approximately 4. The reduction of pH from 5.6 to 4 is primarily due to sulfuric acid (Galloway, et al., 1976). Data on the acidity of the rainfall were not available, although generalized information suggests that it is lightly buffered.

Alkalinity Consumption Calculation

The consumption of the alkalinity inherent to the ash material was calculated assuming the rainfall imparts a strong acid to the ash material. Calculations were based on a carbonate system and it was assumed that all of the rainfall (pH 4) over the ash pile area infiltrates and forms leachate. This infiltrating water neutralizes the available alkalinity, thereby depressing the pH. The buffer intensity of the ash was calculated using empirical and theoretical methods as described by Benefield, et al. (1982). The change in pH was then determined by relating the differential quality of strong acid (rainfall) added to the ash pile and the buffer intensity of the ash material.

The alkalinity of the waste material is significantly greater than the acidity imparted by the rainfall so that a very large amount of pH 4 rainfall must be added to the ash material before the pH is significantly reduced. Figure 1 shows the results of the calculations. For all practical purposes, the leachate from the ash pile will remain in the near-neutral range for the foreseeable future.

Cadmium and Lead Concentrations

The solubility of cadmium and lead in aqueous solutions is strongly dependent on the pH; for example, cadmium and lead hydroxides are

approximately four orders of magnitude less soluble at pH 7 than at pH 5 (Benefield, et al., 1982). Cadmium and lead carbonates are two orders of magnitude less soluble at pH 7 than at pH 5 (Sawyer and McCarty, 1978). The alkalinity consumption calculations have shown that the pH of any leachates would remain in the near-neutral range so that such waters would be expected to exhibit very significantly reduced cadmium and lead concentrations as compared to the results of the EP toxicity testing.

LABORATORY EXPERIMENTATION

The theoretical calculations used to examine potential cadmium and lead concentrations in the ash pile leachate involve a series of assumptions and models. Their representation of actual ash pile conditions is difficult to assess. As a very preliminary check on the reasonableness of the theoretical evaluation, D'Appolonia performed some preliminary laboratory experimentation.

A 10-gram grab sample of the ash material was underlain by filter paper and placed in a Buchner funnel. This material, which had an initial pH of 8.3, was then leached with 0.0001-Normal sulfuric acid solution (pH 4) by slowly adding the acid in a stepwise fashion. The pH of the leachate was then recorded.

This simplified laboratory test showed that after leaching with approximately 1,100 milliliters of the dilute strong acid, the pH of the leachate was reduced by about one unit. The amount of permeant was the equivalent of approximately 150 pore volumes of the ash sample, so that this preliminary test represented many years of leaching with rainfall. While it is recognized that the experimentation was not rigorous, the results are generally consistent with the theoretical calculations (Figure 1).

SUMMARY AND CONCLUSIONS

D'Appolonia has performed evaluations of the potential leachate characteristics from the ash bank material at the Hranica site. The theoretical alkalinity consumption evaluation and preliminary laboratory experimentation indicate that the alkalinity of the waste material is significantly greater than that expected from the rainfall, and a very long leaching time would be required to significantly depress the pH. For the foreseeable future, the pH of any leachates would be expected to remain in the near-neutral range. Concentrations of cadmium and lead are very sensitive to the pH in aqueous solutions. In the near-neutral range, the cadmium and lead in concentrations in the leachate would be significantly less than those developed at pH 5 in the EP toxicity procedure.

D'Appolonia concludes from this preliminary assessment that the potential environmental threat imposed by the ash bank material is quite limited. Improving the isolation of this material by providing a properly graded cover will reduce the potential impacts of this material to an insignificant level.

We trust that this information satisfies your requirements. If you have any questions or require any additional information/clarification, please do not hesitate to contact us.

Respectfully submitted,

Leo M. Brausch
Manager, Project Development

LMB:mbu
Enclosure

REFERENCES

LIST OF REFERENCES

Benefield, L. D., J. F. Judkins, Jr., and B. L. Weand, 1982, Process Chemistry for Water and Wastewater Treatment, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Galloway, J. N., G. E. Likens, and E. S. Edgerton, 1976, "Acid Precipitation in the Northeastern United States: pH and Acidity," Science, Volume 194, pp. 722-723.

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U.S. Department of Commerce, 1961, "Climatic Summary of the United States," Bulletin W, U.S. Weather Bureau, Washington, D.C.

ORIGINAL
(Red)

TABLE

AR300296

D'APPOLONIA

ORIGINAL (Red)

TABLE 1

ASH PILE CHARACTERISTICS[1]

PARAMETER	UNITS	VALUE	HOW DETERMINED
Surface Area	SF	26,300	Field survey
Volume	CY	2,800	Field survey
Mass	TON	2,800	Field observations; 1 CY = 1 TON
Porosity	-	0.6	Field observations; soil mechanics calculations based on unit weights and degree of saturation
Mean Grain Size (d_{50})	mm	1.0	Laboratory analysis
pH	-	7.3	Average from laboratory testing
Total Neutralization Potential	% $CaCO_3$ Equivalent	4.02	Average from laboratory testing performed on minus 60 mesh material (0.25 mm)
Potential Acidity	% $CaCO_3$ Equivalent	0.65	Average from laboratory testing performed on minus 60 mesh material (0.25 mm)
Net Neutralization Potential	% $CaCO_3$ Equivalent	3.37	Total neutralization potential minus potential acidity
Available Neutralization Potential	% $CaCO_3$ Equivalent	0.67	Assumed to be 20 percent of net based on particle size differences between in-field material and laboratory testing
Cadmium Concentration in Leachate at pH 5	mg/ℓ	0.80	Weighted average from laboratory testing
Lead Concentration in Leachate at pH 5	mg/ℓ	3.73	Weighted average from laboratory testing

[1] As of January 16, 1984.

AR300297

D'APPOLONIA

FIGURE

DRAWN BY	MEL 2-17-84	CHECKED BY	LMB	2/17/84	DRAWING NUMBER 83-1344-A3
		APPROVED BY	LMB	2/17/84	

ORIGINAL (Red)

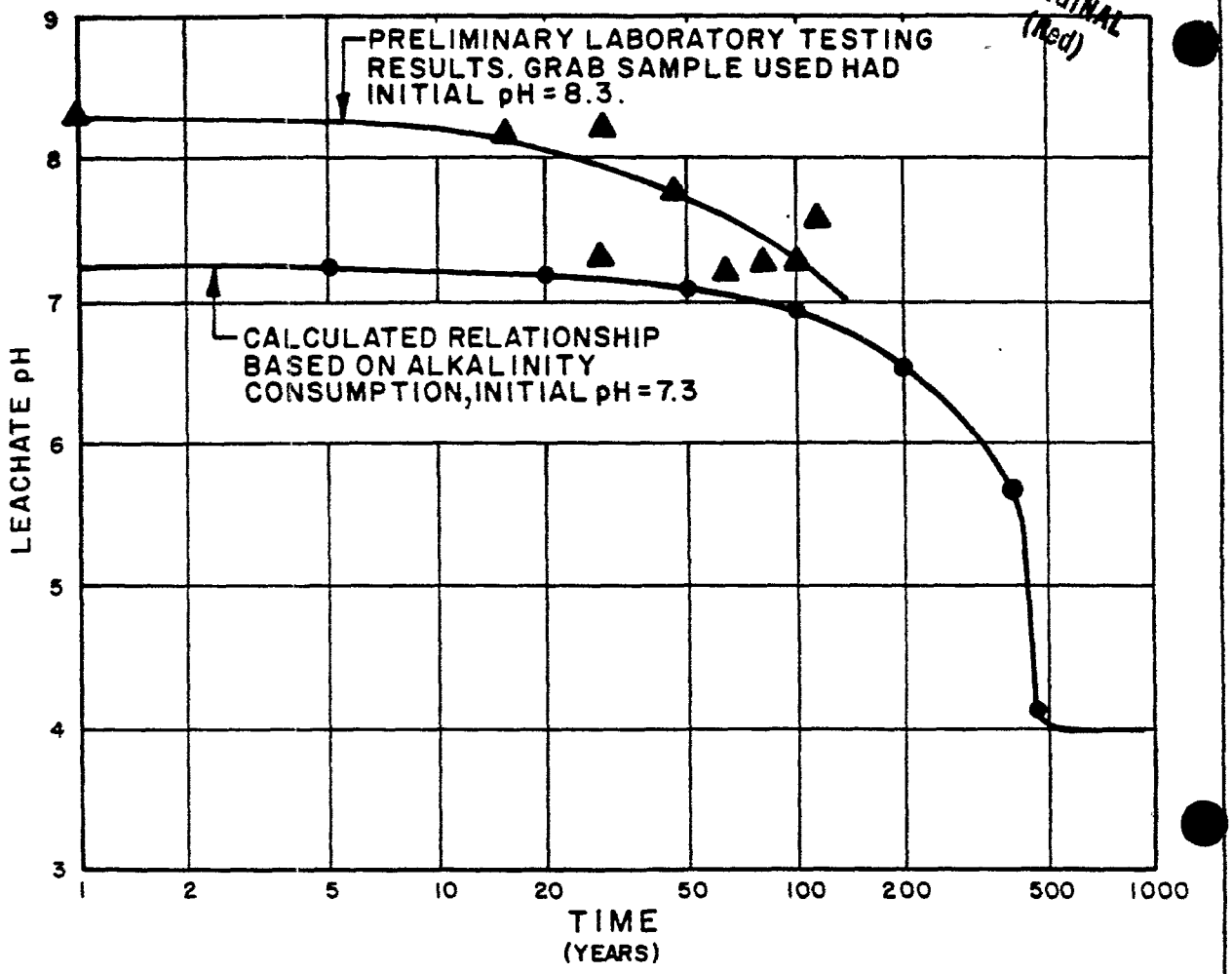


FIGURE 1

pH REDUCTION OF ASH PILE LEACHATE DUE TO ACID PRECIPITATION

PREPARED FOR

PPG INDUSTRIES, INC.
ALCOA
PITTSBURGH, PENNSYLVANIA

NOTE:

SEE TEXTS FOR INPUT DATA AND ASSUMPTIONS.

AR300299

D'APPOLONIA

ORIGINAL (Red)

D'APPOLONIA

WASTE MANAGEMENT SERVICES

December 5, 1983

Project No. X83-1344DW

Mr. Laurence N. Streff
Manager, Environmental Engineering and Control
PPG Industries, Inc.
Coatings and Resins Division
P.O. Box 9
Allison Park, PA 15101

Removal of Subsurface Contaminated Soil
and Ash Residue and Overall Status Report
Hranica Hazardous Waste Site
Sarver, Pennsylvania

Dear Mr. Streff:

In accordance with our telephone discussions, D'Appolonia Waste Management Services, Inc. (D'Appolonia), is providing information to PPG Industries, Inc. (PPG), and the Aluminum Company of America (Alcoa) relative to the removal of subsurface contaminated soil and ash residue from the Hranica hazardous waste site in Sarver, Pennsylvania. The work to be accomplished is to excavate visibly contaminated soils and ash residue and load these materials into properly prepared transportation vehicles. The waste loads will be manifested and delivered to the Cecos International, Inc. (Cecos), hazardous waste landfill in Niagara Falls, New York. Representatives of PPG and/or Alcoa will be present at the site during this operation and we will work closely with your personnel to ensure that all required, but not excess, material is removed.

Table 1 provides a cost estimate for the proposed subsurface removal activity. As indicated in the table, we estimate that a total of 8,000 cubic yards of contaminated soil and ash residue will be removed based on our observations during on-site test pit excavations. We estimate that the waste will be removed at a rate of 600 cubic yards (30 truckloads) per day. Barring unforeseen weather delays, we would anticipate completing this work in a total of 14 days. Assuming a starting date of December 7, 1983 and a six-day-per-week schedule, we anticipate completing the removal of the subsurface materials on or about December 23, 1983.

AR300300

10 DUFF ROAD PITTSBURGH PA 15235 TELEPHONE 412/243-3230 TELEX 81-2378

ORIGINAL (Red)

In our telephone conversation on November 28, 1983, you also requested a status report on the disposal of the polychlorinated biphenyls (PCB) liquids from the Hranica site. We are currently awaiting pickup of materials by SCA Chemical Services Company, Inc. (SCA), for incineration at their facility in Chicago, Illinois. As you are aware, there is a glut of PCB materials that need to be disposed prior to December 31, 1983, and this has created a significant backlog for all PCB disposers. We cannot state with certainty when the materials from the Hranica site will be delivered to SCA, but we anticipate that this will occur no later than December 31, 1983.

The total cost to date for cleanup of the Hranica site is approximately $1.61 million. This total does not include PCB disposal (less than $20,000) or the subsurface soil/ash disposal. Table 2 provides a breakdown of quantities attributable to PPG and Alcoa for drum handling bid items.

D'Appolonia is committed to meeting the needs of PPG and Alcoa and completing the work at the Hranica site. We look forward to bringing this project to a successful completion. If you have any questions or require any additional information/clarification, please do not hesitate to contact us.

Very truly yours,

Leo M. Brausch
Manager, Project Development

LMB:mbu

cc: G. J. Crouth

ORIGINAL (Red)

TABLE 1

COST ESTIMATE
REMOVAL OF SUBSURFACE
CONTAMINATED SOIL AND ASH RESIDUE

	BID ITEM	UNITS	QUANTITY	UNIT PRICE ($)	TOTAL PRICE ($)
18.	Excavate and Load Contaminated Soil	CY	4,000	20.00	80,000
19.	Excavate and Load Ash Residue	CY	4,000	20.00	80,000
20.	Transport Soil and Ash to Secure Landfill	CY	8,000	35.00	280,000
21.	Dispose of Soil and Ash at Secure Landfill	CY	8,000	69.50	556,000
				TOTAL	996,000

AR300302

ORIGINAL (Red)

TABLE 2

QUANTITY BREAKDOWN

	BID ITEM	PPG	ALCOA	OTHER	TOTAL
1	Label, Stage, and Segregate Drums	12,399 (64.6%)	4,271 (22.2%)	2,535 (13.2%)	19,205
2	Open and Sample Drums (Bung Opening)	4,715 (71.2%)	1,622 (24.5%)	282 (4.3%)	6,619
3	Open and Sample Drums (Piercing Required)	4,715 (67.5%)	1,622 (23.2%)	649 (9.3%)	6,986
4	Sampling, Characterizing, and Classifying	9,430 (69.3%)	3,244 (23.8%)	931 (6.8%)	13,605
10	Solidification of drummed Liquids				
	10.1 55-gallon	1,133 (90.9%)	30 (2.4%)	84 (6.7%)	1,247
	10.2 30-gallon	12 (54.5%)	8 (36.4%)	2 (9.1%)	22
12	Bulk Liquids (1)	621 (54.9%)	80 (7.1%)	430 (38.0%)	1,131
24	Bulk Drummed Solids				
	24.1 55-gallon	8,293 (80.5%)	1,533 (14.9%)	475 (4.6%)	10,301
	24.2 30-gallon	182 (10.1%)	1,588 (88.4%)	26 (1.4%)	1,796
	TOTAL VALUE OF ITEMS AT UNITS PRICES ($)	387,534.60 (68.9%)	127,578.40 (22.7%)	47,498.20 (8.4%)	~~$62,251,120~~ $62,611.20

(1) Inventory does not include 371 drums of liquids awaiting offsite disposal.

AR300303

D'APPOLONIA

ORIGINAL (Red)

WASTE MANAGEMENT SERVICES

February 28, 1984

Project No. 83-1344

Mr. Laurence N. Streff
Manager, Environmental Engineering
and Control
PPG Industries, Inc.
Coating and Resins Division
P.O. Box 9
Allison Park, PA 15101

Supplemental Report
Completion of Surficial Waste Cleanup
Hranica Hazardous Waste Site
Sarver, Pennsylvania

Dear Mr. Streff:

On February 17, 1984, D'Appolonia Waste Management Services (D'Appolonia) submitted to PPG Industries, Inc. (PPG), a letter report outlining a program for completion of the surficial waste cleanup of the Hranica hazardous waste site located near Sarver, Pennsylvania. Three alternative schemes and estimated construction costs for each scheme were provided. This supplemental report provides PPG with a detailed itemized construction cost relative to each of the schemes.

Also on February 17, 1984, D'Appolonia conducted additional field reconnaissance and identified a third potential source of borrow materials which is located approximately two miles north of the Hranica site. As shown in Figure 1, Test Pits Nos. 9 and 10 were excavated for visual classification of the soil and to provide an estimate of the quantity of cover material available. Two bag samples were collected from the test pits and sent to the D'Appolonia laboratory in Murrysville, Pennsylvania for geotechnical analyses. Tests which were conducted consisted of the following:

- Natural water content
- Grain-size analysis
- Atterberg limits
- Moisture-density relationship (Modified Proctor compaction).

10 DUFF ROAD PITTSBURGH PA 15235 TELEPHONE 412.243-3230 TELEX 81-2378

ORIGINAL (Red)

The results of these tests, as shown in Table 1, indicate that the soil, utilizing the USDA/USCS classification, ranges from silt and clay to a clayey silt with some sand. This soil when compacted will produce a relatively low-permeability cover and, if scarified at the surface prior to seeding, will support vegetative growth. Preliminary field measurements indicate that sufficient quantities of cover material are available from the proposed borrow area where Test Pits Nos. 9 and 10 were excavated.

As indicated in Table 2, the total construction cost for the various alternative schemes ranges from $143,000 to $239,000. The reduction in cost which is indicated in this report is realized from the reduction in the haul distance associated with the location of the borrow pit located by D'Appolonia on February 17, 1984.

If you have any questions or require additional clarification concerning this information, please do not hesitate to contact us.

Very truly yours,

Bradley Bundy

Bradley Bundy
Project Manager

BB:mad

AR300305

TABLE 2

ITEMIZED COST ESTIMATE

ITEM	QUANTITIES	BORROW FROM TP 8			BORROW FROM TP 9 AND TP 10		
		UNIT COST	SUBTOTAL	SCHEME TOTAL	UNIT COST	SUBTOTAL	SCHEME TOTAL
Scheme 1							
Site preparation/access upgrade	LS	LS	$23,976		LS	$23,976	
Borrow pit operation	13,320 CY	$2.64/CY	$35,165		$2.17/CY	$28,904	
Hauling from borrow to site	13,320 CY	$4.04/CY	$53,813		$3.07/CY	$40,893	
Cover placement	13,320 CY	$2.67/CY	$35,564		$2.24/CY	$29,837	
Site seeding	14 AC	$1,400/AC	$19,600	$168,118	$1,400/AC	$19,600	$143,210
Scheme 2							
Site preparation/access upgrade	LS	LS	$27,200		LS	$27,200	
Borrow pit operation	20,000 CY	$2.47/CY	$49,400		$1.99/CY	$39,800	
Hauling from borrow to site	20,000 CY	$3.98/CY	$79,600		$3.01/CY	$60,200	
Cover placement	20,000 CY	$2.49/CY	$49,800		$2.05/CY	$41,000	
Synthetic liner installed	112,020 SF	$0.35/SF	$39,207		$0.35/SF	$39,207	
Site seeding	14 AC	$1,400/AC	$19,600	$264,807	$1,400/AC	$19,600	$227,007
Scheme 2a							
Site preparation/access upgrade	LS	LS	$30,015		LS	$30,015	
Borrow pit operation	22,070 CY	$2.47/CY	$54,513		$1.99/CY	$43,919	
Hauling from borrow to site	22,070 CY	$3.98/CY	$87,839		$3.01/CY	$66,431	
Cover placement	22,070 CY	$2.49/CY	$54,954		$2.05/CY	$45,244	
Site seeding	14 AC	$1,400/AC	$19,600	$246,921	$1,400/AC	$19,600	$205,209
Scheme 3							
Site preparation/access upgrade	LS	LS	$38,514		LS	$38,514	
Borrow pit operation	26,200 CY	$2.38/CY	$62,356		$1.93/CY	$50,566	
Hauling from borrow to site	26,200 CY	$3.95/CY	$103,490		$2.97/CY	$77,814	
Cover placement	26,200 CY	$2.40/CY	$62,880		$1.99/CY	$52,138	
Site seeding	14 AC	$1,400/AC	$19,600	$286,840	$1,400/AC	$19,600	$238,632

TABLE 1

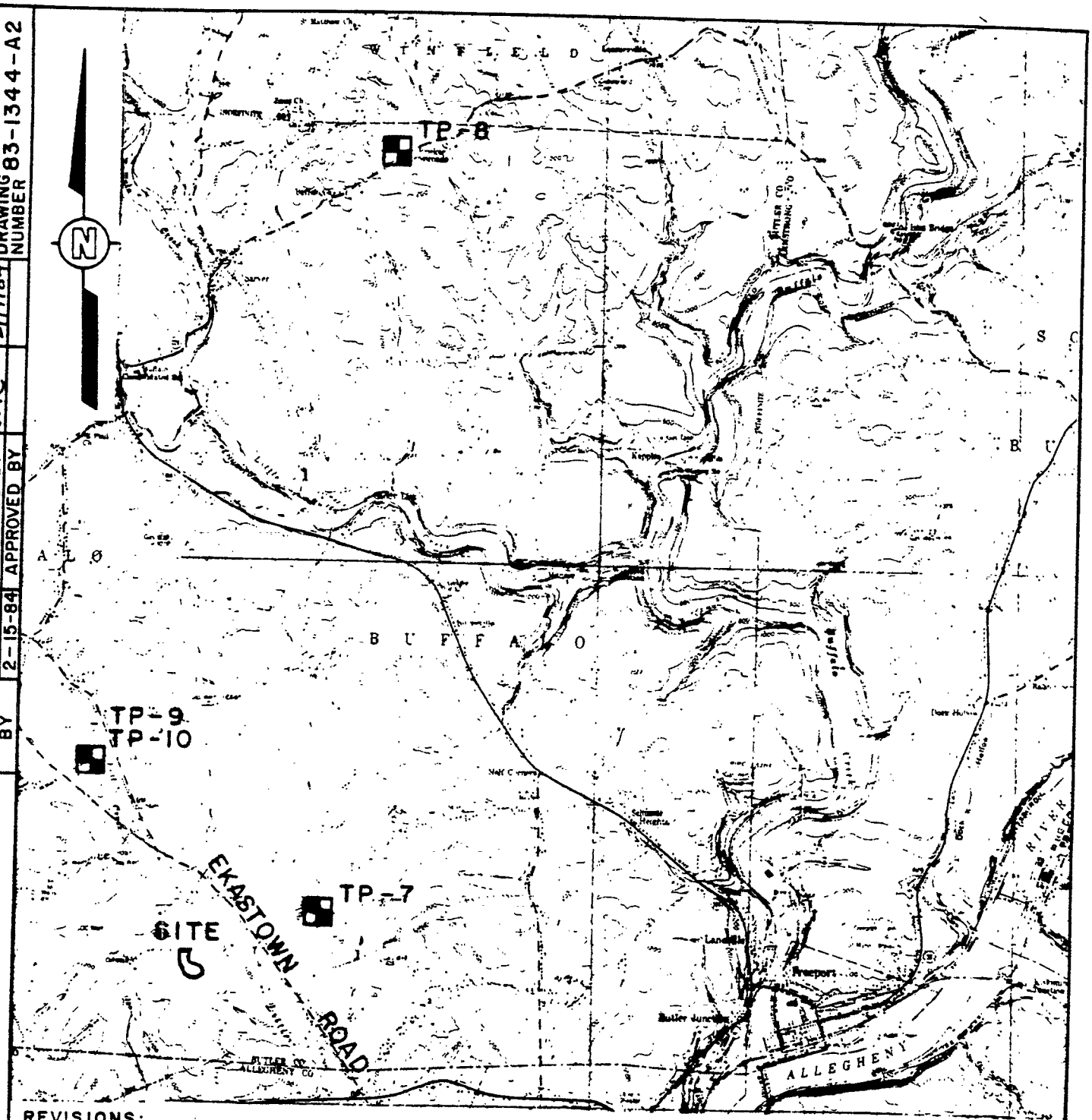
SUMMARY OF LABORATORY TESTING RESULTS

SAMPLE NO.	GRAIN-SIZE ANALYSIS						ATTERBERG LIMITS			NATURAL WATER CONTENT (%)	MODIFIED PROCTOR	
	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	CLASSIFICATION (USDA/USCS)	DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX		OPTIMUM WATER CONTENT (%)	OPTIMUM DRY DENSITY (%)
TP-1	52.3	17.5	24.2	6.0	Sandy loam[1]	Clayey gravel and sand	30.0	20.0	10.0	18.0	10.2	125.4
	43.8	24.0	32.2		GC[2]							
TP-2	68.1	19.9	10.6	1.4	Sand[1]	Silty gravel and sand	NP[3]	NP	NP	10.2	9.1	128.8
	62.6	23.3	14.1		GM[2]							
TP-3	47.0	39.8	10.7	2.5	Loamy sand[1]	Silty gravel and sand	NP	NP	NP	9.1	11.4	125.3
	41.3	44.2	14.5		GM-SM[2]							
TP-4	14.5	44.5	36.0	5.0	Sandy loam[1]	Clayey silty sand and trace of gravel	21.0	17.0	4.0	15.2	10.7	125.9
	8.4	46.8	44.8		SC-SM[2]							
TP-5	61.6	22.4	9.0	7.0	Loamy sand[1]	Silty gravel and sand	NP	NP	NP	15.0	9.6	125.5
	57.7	25.4	16.9		GM[2]							
TP-6	50.4	26.6	28.8	4.2	Sandy loam[1]	Silty gravel and sand	NP	NP	NP	13.1	9.3	122.5
	46.3	29.1	24.6		GM[2]							
TP-7	3.8	52.0	33.8	10.4	Sandy loam[1]	Silty clay and sand	34.0	21.0	13.0	18.2	11.7	126.3
	1.0	53.3	45.7		SC							
TP-8	39.6	16.7	34.7	9.0	Sandy loam[1]	Clay and sand with some fine gravel	34.0	23.0	11.0	17.6	11.0	122.3
	25.3	30.1	44.6		SC[2]							
TP-9	0.5	26.1	48.6	24.8	Loam[1]	Clayey silt, some sand	43.0	24.0	19.0	25.9	14.0	119.0
	0	25.6	74.4		CL[2]							
TP-10	2.8	4.4	44.1	48.7	Silty clay[1]	Silt and clay	50.0	25.0	25.0	22.2	11.8	118.4
	1.6	4.4	94.0		CL-CH[2]							

(1) U.S. Department of Agriculture soil classification.

(2) Unified Soil Classification System.

(3) NP = Nonplastic material.



DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
MEL 2-15-84	WJC 2/17/84		83-1344-A2

REVISIONS:

1. GENERAL REVISION

FIGURE 1

TEST PITS AND SITE LOCATION

SCALE

0 4000 8000 FT.

REFERENCE:

U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES OF: FREEPORT, PA. AND CURTISVILLE, PA. DATED: 1953 AND 1953 (PHOTOREVISED 1969) SCALE: 1" = 2000'

PREPARED FOR

PPG INDUSTRIES, INC.
ALCOA
PITTSBURGH, PENNSYLVANIA

D'APPOLONIA

19 1253 HERCULENE. A&B SMITH CO., PGH., PA

APPENDIX G

D'APPOLONIA FRACTURE TRACE ANALYSIS AND PCB CLEANUP

D'APPOLONIA

WASTE MANAGEMENT SERVICES

March 20, 1984

Project No. 83-1344

Mr. Gary J. Crouth
Senior Environmental Control Engineer
Aluminum Company of America
1501 Alcoa Building
Pittsburgh, PA 15219

Transmittal
Preliminary Fracture Trace Analyses

Dear Mr. Crouth:

Mr. Larry Streff (PPG) has requested that I trasmit to you the enclosed Fracture Trace Analyses for the Hranica site. Mr. Streff also has a copy which I sent to him yesterday.

Although the photos are recent (February 8, 1984 by R. M. Keddal and Associates) the quality is not particularly good and therefore the delineation of the traces is difficult. Additionally, due to the surficial disturbance at the site, any traces running through this area would be hidden. However, it can be seen that there are two well defined fracture sets (NNW-NW and NE).

Should you decide to place monitoring wells along these "fractures", I recommend another evaluation be performed on better quality historic photos (i.e., prior to cleanup). The sensitivity of well placement relative to the "trace" is quite high and can be easily missed.

Should you have any questions, please contact me.

Very truly yours,

David E. Andrews
Manager, Engineering Operations

DEA:jmc

Enclosure

cc: L. Streff

AR300311

10 DUFF ROAD PITTSBURGH, PA 15235 TELEPHONE 412 241 1230 TELEX 81-237

F/Hranica Dave Cannon cc BShc GNor

RECORD OF TELEPHONE CONVERSATION

Originator: Ken Bird - IT 243-3230 Place:

Date: 5/17/84 Discussion With: K. Fay

Distribution
1. LNS/TSL/File
2. D.C. Cannon
3.

Project or Subject Discussed:

PCB Removal and Tank Decontamination HRANICA

Main Points of Discussion:

1. Last load of sludge, rinse and decontamination equipmen left site at 12:00 noon 5/14/84.

2. All decontamination equipment which could not be cleaned (plastic, hoses, clothing, tools) were placed in drums.

3. Decontamination was accomplished as follows:

Tank on top of hill

A. Squeegee, shovel sludge off sides
B. Diesel fuel and detergent sprayed on sides
C. Scrubbed sides with brushes
D. High pressure water sprayed on sides and then pumped out
E. Two (2) wipe samples taken

Tanks down the hill

A Squeegee, shovel sludge off sides
B. High pressure spray with diesel fuel only AR(300312 (spray was not effective.)
C. Scrubbed sides with brushes
D. Pumped out sludge and diesel fuel.

FORM 4653 10 - 81

RECORD OF TELEPHONE CONVERSATION (CONT)

Originator: K Bird

Date: 5/17/84

Place:

Discussion With: K Fay

Distribution
1.
2.
3.

Project or Subject Discussed:

Main Points of Discussion:

E. Two (2) wipe samples from each tank

4. Cover was secured on side of top tank.
Larger tank on side of hill was removed, carried up to road, turned upside down and stabilized by piling dirt around it.

Smaller tank was rolled over and stabilized with dirt.

These steps were taken to keep people, animals, rain out of tanks.

5. Guards left site after last load of waste was shipped.

6. Sample results should be available by Thursday, May 24.

AR300313

R. J. Fay

FORM 4653 10 - 81

IT CORPORATION

June 25, 1984

Project No. 831344

Mr. Kevin Fay
PPG Industries
4325 Roseann Drive
Allison Park, PA 15101

Dear Mr. Fay:

The three tanks containing oils and paint sludges at the Hranica site were emptied and decontaminated on May 11 through May 16, 1984. The polychlorinated biphenyls (PCB)-contaminated wastes were manifested and transported via tank truck to the SCA, Model City, New York facility.

The decontamination procedures which were conducted subsequent to sludge removal were as follows:

- Any excess sludge which was present was scrapped from the tank sides and pumped into a vacuum tank truck.
- A high-pressure spray using diesel fuel was utilized to clean the side walls of each tank. This wash solution was then pumped into the tank truck.
- The scrapping and high-pressure wash techniques were then repeated.
- Two wipe samples were taken from each tank.
- Tanks Nos. 3 and 5 were turned upside down and dirt was placed around the tanks to prevent access to the inside of the tanks. The tank cover was bolted to the top tank opening.

The wipe samples were analyzed by the IT Pittsburgh Laboratory for PCB contamination. The test results indicate that a substantial reduction of PCB contamination was attained.

AR300314

If you have any questions on the disposal and decontamination procedures, please contact me.

Very truly yours,

Bradley P. Bundy
Project Manager, Construction

BPB:mll

AR300316

APPENDIX H

EARTH SCIENCES CONSULTANTS
GROUND WATR PROPOSAL AND QA/QC PROGRAM

Sampling and Sample Management

Hranica Landfill

Foreword

This Quality Assurance/Quality Control (QA/QC) Plan was prepared by Earth Sciences Consultants, Inc. (ESC) to describe the sampling and analytical procedures currently used at the Hranica Landfill. The procedures were developed according to specifications provided by PPG Industries, Inc. and The Aluminum Company of America in "Groundwater Monitoring Plan," dated April 25, 1984. Based on those specifications, a technical manual entitled, "Sampling and Sample Management Plan, Hranica Landfill, Sarver, Pennsylvania," was prepared by ESC in August 1984. This QA/QC Plan updates procedures presented in the sampling and sample management plan. The QA/QC Plan also accommodates changes in sample locations and analytical parameters which have occurred in the past or may occur in the future.

Respectfully submitted,

Jeffrey L. Nelson
Project Manager

JLN:lmk

Project No. 6162
November 3, 1986

Table of Contents

Quality Assurance/Quality Control Plan
Sampling and Sample Management
Hranica Landfill

1.0 Introduction

This Quality Assurance/Quality Control Plan governs and describes the procedures used at the Hranica Landfill in Buffalo Township, Butler County, Pennsylvania for the acquisition and analysis of environmental samples. Procedures outlined were developed according to specifications provided in a report issued by PPG Industries, Inc. (PPG) and The Aluminum Company of America entitled, "Groundwater Monitoring Plan," dated April 25, 1984. The following general areas are addressed in detail:

- o Documentation of sample locations.
- o Well purging procedures.
- o Sampling procedures.
- o Field measurements.
- o Decontamination procedures.
- o Chain of custody documentation and procedures.
- o Laboratory procedures.

2.0 Sampling Procedures

Groundwater and surface water are sampled at various locations. This chapter prescribes the procedures used to insure that representative water samples are obtained, that they are suitably preserved, and that a complete documentary record is maintained for every sample.

2.1 Groundwater

Groundwater samples are obtained from the existing monitoring wells at a frequency determined by PPG personnel. The samples are currently collected on a quarterly basis.

2.1.1 Identification of Monitoring Wells

Each well is uniquely identified. Each has the designation W (for monitoring well) and a number. All wells are identified on monitoring well location maps which are a part of the permanent project record.

The wells are labeled in the field. This labeling may be by painting, tagging, inscribing, or other permanent means of identification most applicable to each location. Field identification and map identifications agree in all particulars.

2.1.2 Groundwater Level Measurements and Monitoring Well Evacuation

The static groundwater levels in the monitoring wells are measured prior to well purging using an electric water level meter. The meter probe which contacts the well water is thoroughly rinsed with distilled water before and after use. Measurements are taken with respect to a specified point of elevation (top of well casing) and are recorded to the nearest one hundredth of a foot.

Prior to sampling, each well is purged of standing water to allow inflow of fresh formation water. An adequate purge is the amount of water equal to three well volumes. For slowly recovering wells, bailing to near dryness resulting in a minimum removal of one well volume is considered to be an adequate purge.

Purging of wells is documented on the well evacuation report. For wells which cannot be bailed to near dryness, an accurate measurement of the volume of water removed is made to demonstrate an adequate purge. The calculation of a well volume is done using the formula:

$$V = 7.48\,\pi r^2(D-I)$$

where: V = volume in gallons,
r = radius of monitoring well (feet),
I = depth (feet) to water below measurement point, and
D = total depth (feet) of well below measurement point.

2.1.3 Sampling Groundwater

Due to the slow recharge rates of the wells at Hranica Landfill, groundwater samples are obtained on the second or third day following purging of the wells. This is necessary to insure that an adequate volume of water for analytical purposes is present in the wells. If more than this period of time passes between purging and sampling, the well is evacuated again before

sampling. The depth of the sample from the specified measuring point is recorded on the water sampling report.

The first sample portion collected from each well is for volatile organic compounds (VOC). This sample is collected with a stainless steel bailer designed to fill the VOC sample bottle while submerged within the well. Use of this specific VOC sampler minimizes volatilization of any contaminants present. The remainder of the sample from each well is collected with a polyvinylchloride bailer.

The first bailer removed from each well is discarded to minimize the potential for sample contamination or dilution from water clinging to the bailer (decontamination procedures are discussed in Chapter 3.0). The next bailer is emptied into plastic containers prerinsed with the well water for analysis of pH, specific conductance, and temperature. This information is entered on the field sampling report form. The calibration and proper function of the conductivity meter and pH meter are ascertained prior to commencing measurements. The pH meter is calibrated between pH 4.0 and 7.0 or 7.0 and 10.0 (depending on the expected pH of the sample) prior to initiation of sampling and at least one additional time during the day. If a sample is to be collected from a location out of the pH range for which the meter was calibrated, a recalibration will also be performed with proper standards at that time. The conductivity meter is calibrated with a solution of known specific conductance at the beginning and end of the day. Calibration of the instruments is noted on the field sample report by checking the appropriate box. Specific problems with calibrating are explained in the comment section. All equipment used for the field measurements is thoroughly rinsed with distilled water prior to and after each use.

Subsequent bailers full of well water are emptied into appropriate sample bottles which contain preservatives specific to the parameters to be analyzed. The sample for metals is vacuum filtered through a 45-micron membrane filter prior to placement in the sample bottle.

Table 1 lists the bottle sizes, types, and preservatives (if necessary) to be utilized for sample collection. Since the bottles are supplied with the

appropriate preservative already added, the bottles must not be rinsed with sample prior to filling.

2.1.4 Labeling and Chain of Custody

A sample label identifying project number, sample location, sample date, sampler, and sample type is affixed to each sample bottle when it is filled. Chain of custody documentation procedures are followed for each sample. A Chain of Custody Form (Attachment 1) is filled out by the sampler as the samples are obtained. This form then accompanies the samples at all times and is placed in the project file after final sample disposition. All transfers of custody are documented on this form. Samples are considered to be under a person's custody if:

- o the samples are in his possession,
- o the samples are within view after being in possession, or
- o the samples are sealed and placed in a secure area by the person having last custody.

When a cooler has been filled and is ready to be sealed, a chain of custody seal is filled out and taped onto the cooler in such a way that the cooler cannot be opened without breaking the seal. Similarly, if a cooler containing samples is for any reason out of the immediate custody and observation of the sampler, it is locked up or sealed whether full or not.

2.2 Surface Water

Surface water samples are obtained at various sites. Sample locations are indicated on the appropriate monitoring well location map or other map and identified in the same way as the sample. Surface water sites designated for continued monitoring are permanently marked in the field. The marker will be a post, pipe, or other durable object with the sample point identification plainly and permanently written on it.

Where possible, surface water samples are obtained by immersing a container below the surface of the water and allowing it to fill. Care is taken to avoid stirring up sediments or other bottom materials. Similarly, any film or floating materials are avoided. When necessary, small channels or dams

are made to facilitate sample collection. Flow estimates are made by appropriate methods at each location. Field analysis, labeling, and chain of custody procedures for surface water samples are identical to those specified for groundwater.

3.0 Decontamination and Cleaning

All contact parts of field analytical equipment and bailers are cleaned between wells and/or surface locations to avoid cross contamination between samples. The routine decontamination procedure consists of thoroughly rinsing the equipment in distilled water. To further limit the potential for cross contamination, sampling proceeds from the least contaminated location to the most contaminated location based on past analytical data.

4.0 Quality Control Samples

A field blank for volatile organic compounds is prepared for each sampling trip. The field blank is distilled water placed in a sample container in the laboratory which then accompanies the actual sample containers at all times. Beginning in 1986, a complete set of field blanks (for all analytical parameters) is prepared for one of the quarterly sampling events. The field blanks are analyzed in the laboratory in conjunction with the actual samples. Also beginning in 1986, a duplicate sample is collected in the field during one of the quarterly sampling events.

5.0 Laboratory Procedures

The analytical methods utilized for samples collected at the Hranica Landfill are referenced in Table 2. The specific analytical program is determined on an annual basis in conjunction with PPG. Additional parameters may be added at any time and analysis will be performed in accordance with the referenced methods.

Laboratory quality assurance and quality control procedures are performed in accordance with the established laboratory plan. This program includes analysis of duplicates, spikes, and unknowns on a regularly scheduled basis.

Tables

Table 1
Sampling and Preservation of Aqueous Samples

Analyte(s)	Bottle Volume (ml)	Bottle Type	Preservative	Holding Time
Physical Properties				
pH	25	Plastic	None	Analyze immediately
Specific Conductance	100	Plastic	Cool to 4°C	28 days
Total Dissolved Solids	100	Plastic	Cool to 4°C	7 days
Metals				
Dissolved	200	Plastic	HNO_3 to pH <2, filter on site	6 months
Total	100	Plastic	HNO_3 to pH <2	6 months
Mercury	100	Plastic	HNO_3 to pH <2	28 days
Inorganics (Nonmetallics)				
Alkalinity	100	Plastic	Cool to 4°C	14 days
Chloride	50	Plastic	None	28 days
Cyanide	500	Plastic	Cool to 4°C, NaOH to pH >12	14 days
Nitrogen				
Ammonia	400	Plastic	Cool to 4°C, H_2SO_4 to pH <2	28 days
Nitrate (and nitrite)	100	Plastic	Cool to 4°C, H_2SO_4 to pH <2	28 days
Sulfate	50	Plastic	Cool to 4°C	28 days
Organics				
Total Organic Carbon	125	Glass(1)	Cool to 4°C	28 days
Total Organic Halogens	250	Dark glass(1)	Cool to 4°C	14 days
Phenolics	500	Glass	Cool to 4°C, H_2SO_4 to pH <2	28 days
Volatiles	40	Two VOA vials	Cool to 4°C	14 days
Acid/Base-Neutral Extractable	2.5 liter	Glass	Cool to 4°C	7 days/40 days(2)

(1) Teflon-lined cap.

(2) Seven days prior to extraction; 40 days holding time for extract.

Table 2
Analytical Method Reference Table for Aqueous Samples

Parameter	Analytical Method (1)	Analytical Method (2)	Detection Limit
Physical Properties:			
pH	150.1	9040	±0.05 pH units
Specific Conductance	120.1	9050	±10 µmhos/cm
Total Dissolved Solids	160.1	-	10 mg/l
Metals (Dissolved):			
Arsenic	206.2	7060	0.001 mg/l
Barium	208.2	7081	0.01 mg/l
Cadmium	213.2	7131	0.001 mg/l
Chromium	218.1	7190	0.01 mg/l
Lead	239.2	7421	0.01 mg/l
Mercury	245.1	7470	0.0005 mg/l
Selenium	270.2	7740	0.001 mg/l
Silver	272.2	7760	0.010 mg/l
Antimony	204.1	7040	1 mg/l
Beryllium	210.1	7090	0.010 mg/l
Copper	220.1	7210	0.01 mg/l
Nickel	249.1	7520	0.1 mg/l
Zinc	289.1	7950	0.01 mg/l
Thallium	279.2	7841	0.001 mg/l
Calcium	215.1	-	1 mg/l
Magnesium	242.1	-	1 mg/l
Sodium	273.1	-	1 mg/l
Potassium	258.1	-	1 mg/l
Iron	236.1	-	0.1 mg/l
Manganese	243.1	-	0.01 mg/l
Inorganics:			
Alkalinity ($CaCO_3$)	310.1	-	2 mg/l
Chloride	325.2	-	0.5 mg/l
Cyanide	335.2	9010	0.01 mg/l
Ammonia	350.3	-	0.1 mg/l
Nitrate	353.3	-	0.1 mg/l
Sulfate	375.4	-	1 mg/l

See footnotes at end of table.

Table 2
(Continued)

Parameter	Analytical Method (1)	(2)	Detection Limit
Organics:			
Total Organic Carbon	415.1	9060	1 mg/l
Total Organic Halogens	450.1	9020	0.005 mg/l
Oil and Grease	413.1	-	1 mg/l
Phenolics	420.1	-	0.01 mg/l
Volatiles	601(3) 602(3) 624(3)	8010 8015 8020 8240	5-250 µg/l
Base-Neutral Extractables	625(3)	8270	10-50 µg/l
Acid Extractables	625(3)	8270	10-50 µg/l

(1) Source (except as otherwise noted): U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.

(2) Source: U.S. Environmental Protection Agency, 1982, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Office of Solid Waste, Washington, D.C.

(3) Source: U.S. Environmental Protection Agency, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.

Attachment 1

Chain of Custody Form

EARTH SCIENCES CONSULTANTS, INC.
CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME					NO. OF CON-TAINERS						REMARKS
SAMPLERS:(signature)												
STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION							

RELINQUISHED BY:(signature)	DATE/TIME	RECEIVED BY:(signature)	RECEIVED FOR LABORATORY BY:(signature)
RELINQUISHED BY:(signature)	DATE/TIME	RECEIVED BY:(signature)	DATE/TIME:
RELINQUISHED BY:(signature)	DATE/TIME	RECEIVED BY:(signature)	REMARKS:
RELINQUISHED BY:(signature)	DATE/TIME	RECEIVED BY:(signature)	
RELINQUISHED BY:(signature)	DATE/TIME	RECEIVED BY:(signature)	

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APPENDIX I

HRANICA DOCUMENT INDEX

HRANICA DOCUMENT INDEX

NO.	DATE	SUBJECT	ORIGINATOR	COMPANY	RECIPIENT	COMPANY	DOCUMENT TYPE	GROUP
001	11/11/85	SITE VISIT	FAY K J	PPG	INT FILE	PPG	MEMO	SB
002	5/12/82	SITE SURVEY	CANNON D C	PPG	BUTERA T L	PPG	MEMO	SB
003	4/26/84	DOCUMENT INDEX					DOCUMENT INDEX	SB
004	10/ 9/81	SOLVENTS	STREFF L N	PPG	KING P M	PPG	MEMO	SB
005	6/29/81	RESPONSIBLE PARTIES	KING P M	PPG	WEIN H J	DER	LETTER	SB
006	4/10/81	DISPOSAL PRACTICES		PPG		VND	NEWS RELEASE	SB
007	5/ 4/81	MEDIA COVERAGE	BENARD M P	PPG	SLANEY M G	PPG	MEMO	SB
008	4/13/86	SITE VISIT	HURSH C	DER	INT FILE	DER	MEMO	SB
009	4/ 9/81	DISPOSAL PRACTICES		PPG		VND	NEWS RELEASE	SB
010	/ /	CONTRACT AWARD	BENARD M P	PPG		VND	NEWS RELEASE	SB
011	1/11/82	WASTE CHARACTERIZATION	STREFF L N	PPG	PRICE R L	PEC	LETTER	SB
012	8/12/82	SITE ASSESSMENT					MEMO	SB
013	1/17/83	SITE VISIT	STREFF L N	PPG	INT FILE	PPG	MEMO	SB
014	11/20/81	FUNDING FOR SITE STUDY	STREFF L N	PPG	ACCOUNTING	PPG	FORM	SB
015	6/ 8/83	PUBLIC MTG ON CLEANUP PLAN	HURSH C	DER			MTG. SUMMARY	SB
016	8/ 9/83	SITE VISIT	LAFOND T J	PPG	SLANEY M G	PPG	MEMO	SB
017	6/26/86	SITE STATUS REPT	CANNON D C	PPG	STOKES C	EPA	LETTER	SB
018	5/ 9/86	STATEMENT OF WORK					REPORT	SB
019	5/29/85	GCA REPT	CROUTH G	ALCOA	STOKES C	EPA	LETTER	SB
020	9/ 1/84	SITE ASSESSMENT	STOKES C	EPA	CANNON D C	PPG	REPORT	SB
021	12/ 2/83	GW/SW DATA	HURSH C	DER	HRANICA MRS		LETTER	RA
022	/ /	PCBS					MEMO	RA
023	10/13/83	DRUM REMOVAL	LAFOND T J	PPG	STREFF L N	PPG	MEMO	RA
024	12/12/83	GW/SW DATA	HURSH C	DER	HRANICA MRS		LETTER	RA
025	10/24/83	CONTRACTOR APPROVAL	CROUTH G	ALCOA	BRAUSCH L M	DAPP	LETTER	RA
026	6/ 8/83	PUBLIC MTG ON CLEANUP PLAN	HURSH C	DER			MTG. SUMMARY	RA
027	5/31/86	DER/EPA POSITIONS ON REM ACT	CANNON D C	PPG	INT FILE	PPG	MEMO	RA
028	7/29/83	APPROVAL OF REMEDIAL ACTIONS	HURSH C	DER	BRAUSCH L M	DAPP	LETTER	RA
029	6/14/84	DOCUMENT INDEX	CANNON D C	PPG	DIGIULIO D	EPA	DOCUMENT INDEX	RA
030	7/ 6/84	SITE VISIT	STREFF L N	PPG	INT FILE	PPG	MEMO	RA
031	6/27/84	GCA REPT	CANNON D C	PPG	INT FILE	PPG	MEMO	RA
032	6/27/84	GCA REPT	CANNON D C	PPG	DIGIULIO D	EPA	LETTER	RA
033	7/17/84	SITE PHOTOGRAPHS	STREFF L N	PPG	INT FILE	PPG	MEMO	RA
034	9/ 7/84	SITE VISIT	STREFF L N	PPG	INT FILE	PPG	MEMO	RA
035	12/10/85	RI/FS	KING P M	PPG	DEBENEDICTIS N	EPA	LETTER	RA
036	12/10/85	RI/FS	KING P M	PPG	SEIF J	EPA	LETTER	RA
037	12/ 9/85	RI/FS	CROUTH G	ALCOA	MEMON A A	DER	LETTER	RA
038	2/13/86	CLEANUP COMPLETION	CANNON D C	PPG	INT FILE	PPG	MEMO	RA
039	2/17/84	CLEANUP COMPLETION	BUNDY B	DAPP	STREFF L N	PPG	LETTER REPT	RA
040	2/28/84	CLEANUP COMPLETION	BUNDY B	DAPP	STREFF L N	PPG	LETTER REPT	RA
041	2/29/84	CLEANUP STATUS REPORT	STREFF L N	PPG	GILBERT H E	PPG	MEMO	RA
042	3/20/84	FRACTURE TRACE ANALYSIS	ANDREWS D E	DAPP	CROUTH G J	ALCOA	LETTER	RA
043	4/ 9/84	DER SAMPLING	STREFF L N	PPG	LAFOND T J	PPG	MEMO	RA
044	3/14/84	SURFACE COVER	CANNON D C	PPG	WEIN H J	DER	LETTER	RA
045	3/15/84	CLEANUP STATUS REPORT	STREFF L N	PPG	INT FILE	PPG	MEMO	RA
046	3/13/86	ALCOA/PPG COOPERATION	CROUTH G	ALCOA	CANNON D C	PPG	LETTER	RA
047	12/30/83	CLEANUP STATUS REPORT	CANNON D C	PPG	WEIN H J	DER	MEMO	RA
048	12/ 5/83	SOIL/ASH REMOVAL	BRAUSCH L M	DAPP	STREFF L N	PPG	LETTER	RA

HRANICA DOCUMENT INDEX

NO.	DATE	SUBJECT	ORIGINATOR	COMPANY	RECIPIENT	COMPANY	DOCUMENT TYPE	GROUP
049	12/21/83	SOIL/ASH REMOVAL	CANNON D. C.	PPG	WEIN H. J.	DER	LETTER	RA
050	11/18/85	SIGNIFIGANT EVENTS					CHRONOLOGY	RA
051	11/10/82	RFP	CANNON D. C.	PPG	INT. FILE	PPG	MEMO	RA
052	12/14/82	SITE VISIT	CANNON D. C.	PPG	INT. FILE	PPG	MEMO	RA
053	11/ 4/81	CONSULTING SERVICES	ESCHER E. D.	PEC	WYCHE P. L.	PPG	LETTER PROP.	RA
054	1/13/86	RI/FS	SEIF J. M.	EPA	KING P. M.	PPG	LETTER	RA
055	12/13/83	SOIL ANALYSIS	DUCK J. J.	DAPP		PPG	TRANSMITTAL LTR	WC
056	11/20/81	WASTE STREAMS	STREFF L. N	PPG	PRICE R. L.	PEC	LETTER	WC
057	11/19/81	AIR MONITORING	STREFF L. N	PPG	DURITSA C.	DER	LETTER	WC
058	10/27/81	SITE VISIT	STREFF L. N.	PPG	INT. FILE	PPG	MEMO	WC
059	11/ 4/83	PCBS	CANNON D. C.	PPG	INT. FILE	PPG	MEMO	WC
060	9/ 9/83	CLEANUP STATUS REPORT	LAFOND T. J.	PPG	SLANEY M. G.	PPG	MEMO	WC
061	9/ 9/83	GROUND WATER MONITORING	LAFOND T. J.	PPG	HURSH C.	DER	LETTER	WC
062	8/17/83	WASTE REMOVAL	FLOOM K. J	DAPP	ELIAH S.	SCA	LETTER	WC
063	9/ 8/83	LIQUID SAMPLES	LAFOND T. J.	PPG	FLOOM K.J.	DAPP	LETTER	WC
064	2/23/84	SURFACE COVER	STREFF L. N.	PPG	GILBERT H. E.	PPG	MEMO	WC
065	2/17/84	ASH	BRAUSCH L. M	DAPP	STREFF L. N.	PPG	TRANSMITTAL LTR	WC
066	2/ 8/84	ASH	BRAUSCH L. M.	DAPP	STREFF L. N.	PPG	TRANSMITTAL LTR	WC
067	2/ 2/84	GROUND WATER MONITORING	CROUTH G.	ALCOA	CANNON D. C.	PPG	MEMO	WC
068	1/17/84	PCBS	BRAUSCH L. M.	DAPP	STREFF L. N.	PPG	MEMO	WC
069	7/ 3/85	PCBS	CANNON D. C.	PPG	STREFF L N.	PPG	MEMO	WC
070	10/19/84	GROUND WATER MONITORING	SKINNER D. I.	DER	STREFF L. N.	PPG	LETTER	WC
071	8/ 1/84	PCBS	BUNDY B.	DAPP	FAY K. J.	PPG	TRANSMITTAL LTR	WC
072	8/27/84	WELL CASINGS	MOROSKY R M.	ESC	FAY K. F.	PPG	LETTER REPT.	WC
073	8/27/84	GROUND WATER DATA	MOROSKY R M.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	WC
074	6/18/84	WELL CASINGS	MOROSKY R M.	ESC	FAY K. J.	PPG	LETTER PROP.	WC
075	6/25/84	EPA/DER COOPERATION	CAROTHERS L.	PPG	INT. FILE	PPG	MEMO	GW/SW
076	2/16/84	GROUND WATER DATA	HURSH C	DER	STREFF L. N.	PPG	TRANSMITTAL LTR	GW/SW
077	6/25/84	PCBS	BUNDY B	IT	FAY K. J.	PPG	LETTER	GW/SW
078	10/19/84	GROUND WATER MONITORING	SKINNER D I.	DER	STREFF L. N.	PPG	LETTER	GW/SW
079	11/29/84	GROUND WATER MONITORING	CANNON D C.	PPG	SKINNER D. I.	DER	LETTER	GW/SW
080	5/22/84	GROUND WATER MONITORING	CRAWFORD R L.	DER	STREFF L. N.	PPG	LETTER	GW/SW
081	7/ 2/84	GROUND WATER DATA	STREFF L. N.	PPG	CROUTH G.	ALCOA	TRANSMITTAL LTR	GW/SW
082	8/ 1/84	SAMPLING PLAN	HILL T. W.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
083	9/14/84	GROUND WATER DATA	STREFF L. N.	PPG	BOYLE P.	DER	TRANSMITTAL LTR	GW/SW
084	9/18/86	GROUND WATER DATA	HURSH C.	DER	STREFF L. N.	PPG	TRANSMITTAL LTR	GW/SW
085	1/28/84	GROUND WATER DATA	MOROSKY R. M.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
086	12/28/84	EPA FINAL RULE	CANNON D. C.	PPG	INT. FILE	PPG	MEMO	GW/SW
087	12/12/84	GROUND WATER DATA	MOROSKY R. M.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
088	1/17/85	GROUND WATER DATA	HURSH C.	DER	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
089	2/27/85	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
090	4/18/85	SITE VISIT	FAY K. J	PPG	INT. FILE	PPG	MEMO	GW/SW
091	4/24/85	GROUND WATER DATA	WOZNIAK G. J.	DER	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
092	6/ 3/85	GROUND WATER DATA	FAY K. J.	PPG	CROUTH G.	ALCOA	TRANSMITTAL LTR	GW/SW
093	6/ 5/85	GROUND WATER DATA	WOZNIAK G. J.	DER	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
094	6/19/85	GROUND WATER DATA					TABLES	GW/SW
095	6/26/85	GROUND WATER DATA	FAY K. J.	PPG	CROUTH G.	ALCOA	TRANSMITTAL LTR	GW/SW
096	1/14/85	SAMPLING PLAN	FAY K. J.	PPG	NELSON J. L.	ESC	LETTER	GW/SW

HRANICA DOCUMENT INDEX

NO	DATE	SUBJECT	ORIGINATOR	COMPANY	RECIPIENT	COMPANY	DOCUMENT TYPE	GROUP
097	1/18/85	SITE VISIT	FAY K J	PPG	INT. FILE	PPG	MEMO	GW/SW
098	5/29/85	GROUND WATER DATA	NELSON J L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
099	7/25/85	SITE VISIT	FAY K J.	PPG	INT. FILE	PPG	MEMO	GW/SW
100	9/ 5/85	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
101	9/11/85	GROUND WATER DATA	FAY K. J	PPG	CROUTH G.	ALCOA	TRANSMITTAL LTR	GW/SW
102	11/11/85	GROUND WATER MONITORING	FAY K J.	PPG	NELSON J. L.	ESC	LETTER	GW/SW
103	8/15/84	GROUND WATER DATA	MOROSKY R. M.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
104	12/20/85	GROUND WATER DATA	NELSON J L	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
105	11/ 1/85	GROUND WATER MONITORING	NELSON J L.	ESC	FAY K. J.	PPG	REPORT	GW/SW
106	12/20/85	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
107	2/16/84	GROUND WATER DATA	HURSH C.	DER	STREFF L. N	PPG	TRANSMITTAL LTR	GW/SW
108	1/ 9/86	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
109	4/29/86	SITE VISIT	FAY K J	PPG	INT. FILE	PPG	MEMO	GW/SW
110	3/21/86	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
111	6/26/84	COST SHARING AGREEMENT	CANNON D C	PPG	SHAW N R.	ALCOA	LETTER	GW/SW
112	7/13/84	GROUND WATER DATA	FAY K J	PPG	CROUTH G.	ALCOA	TRANSMITTAL LTR	GW/SW
113	10/24/84	SITE VISIT	FAY K. J	PPG	INT. FILE	PPG	MEMO	GW/SW
114	8/ 7/84	SITE ACCESS ROAD	FAY K. J	PPG	INT. FILE	PPG	MEMO	GW/SW
115	4/ 5/84	GROUND WATER MONITORING	STREFF L. N.	PPG	INT FILE	PPG	MEMO	GW/SW
116	12/15/83	SOIL ANALYSIS	DUCK J. J.	DAPP	LAFOND T. J.	PPG	TRANSMITTAL LTR	GW/SW
117	11/28/83	GROUND WATER DATA	HURSH C.	DER	STREFF L. N.	PPG	TRANSMITTAL LTR	GW/SW
118	11/22/83	GW/SW DATA	DUCK J. J.	DAPP	LAFOND T. J.	PPG	TRANSMITTAL LTR	GW/SW
119	3/21/86	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
120	6/ 4/86	GROUND WATER DATA	NELSON J. L.	ESC	FAY K. J.	PPG	TRANSMITTAL LTR	GW/SW
121	4/ 1/81	SITE ASSESSMENT	NAMAN R	FIT		EPA	REPORT	FIT
122	1/17/83	SITE ASSESSMENT ATTACHMENT A	NAMAN R.	FIT		EPA	REPORT	FIT

APPENDIX J

DRAWINGS

EPA REGION III
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # 112039
PAGE # AR300339

IMAGERY COVER SHEET
UNSCANNABLE ITEM

Contact the CERCLA Records Center to view this document.

SITE NAME Hranica landfill

OPERABLE UNIT OD

SECTION/BOX/FOLDER Administrative Record - Section Volume IIIA - Filecom

REPORT OR DOCUMENT TITLE Comprehensive Site report 2 of 2.

DATE OF DOCUMENT 7/27/89

DESCRIPTION OF IMAGERY Topographic Map

NUMBER AND TYPE OF IMAGERY ITEM(S) 1 oversized Map